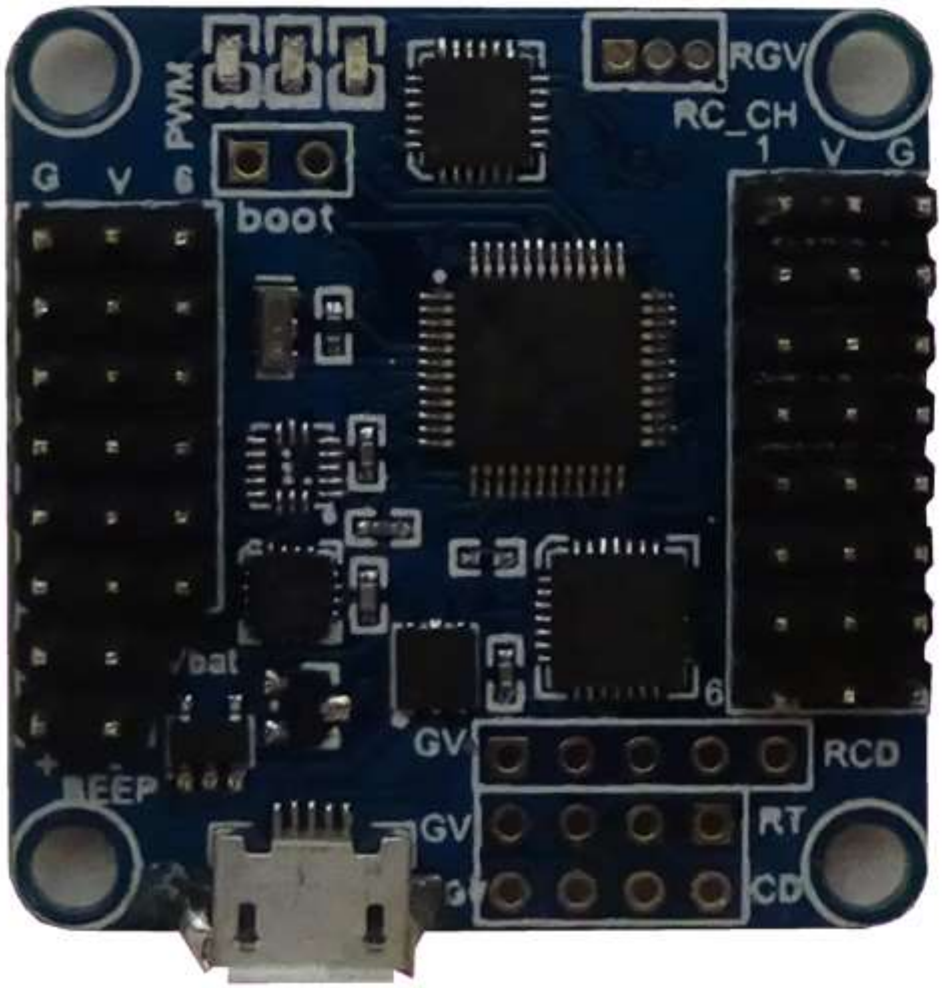
QUEEN HOBBY FLIP32+ MANUAL



COMPILED/CREATED BY RCJOSEB @2014

UPDATED ON 07-30-2014

PURPOSE:

This user manual covers topics needed to setup your Flip 32+ flight controller from ReadyToFlyQuads.com. All the pictures contained in this user manual, except for company logos or trademarks, were created by me and therefore may not be used elsewhere without prior permission.

This manual may not be posted on any other website, blog or forum, etc. except for ReadyToFlyQuads.COM and the thread I created for it on RCGroups.COM.

The following topics will not be covered in this user manual:

- Connecting a GPS
- Connecting a Mavlink enabled OSD
- Using a CPPM enabled receiver
- Firmware(s) other than BaseFlight
- GUIs other than Google Chrome BaseFlight Configurator
- Motor layouts other than Quadcopter X
- Tuning

FEATURES:

As of this writing the version of the Flip32+ is V2.3 Revision 6 and the firmware loaded is BaseFlight V2.3. The Flip 32+ features the following:

- Version 2.3 hardware
- STM32F103CB 32-bit processor running at 3.3V/72MHz
- MPU6050 3-axis MEMS gyro + accelerometer
- HMC5883L 3-axis magnetometer
- MS5611 Pressure sensor
- 16Mbit onboard SPI flash
- Six motor headers with support for various multirotor types **
- Eight receiver headers with support for PWM, PPM and Spektrum satellite receivers. **
- One battery voltage monitor header **
- One Piezo buzzer header **
- Pin headers mounting holes for telemetry, GPS and I2C support ***
- Onboard micro USB port for setup and configuration
- Three status LEDs
- 36mm (1.41732”) x 36mm (1.41732”) in size with 3.175 (0.125”) mounting holes
- 7.3 grams (0.2575 ounces) with headers soldered on
- Can be used as a stand-alone camera gimbal controller
- MultiWii-based configuration software for easy setup

** Pin headers can be either straight or right angled and can be soldered on for you by RTFQ for a small fee.

*** Pin headers are not supplied by RTFQ and will need to be purchased separately.

MY OPINION ON ESC/RECEIVER WIRES:

When connecting ESC and receiver wires to the Flip32+, you will either use all three (ground, voltage, signal) wires or just one (signal) wire. ESC and receiver cables use servo type connectors with removable pins.

It is best practice to remove the pin that will not be utilized from the connector, instead of cutting its wire. If you ever want to use that ESC or receiver cable again and the wire has been cut, you will have to re-solder it. The resulting connection may not be as reliable as it was before when it was intact.

The pins with the wire intact can be removed by:

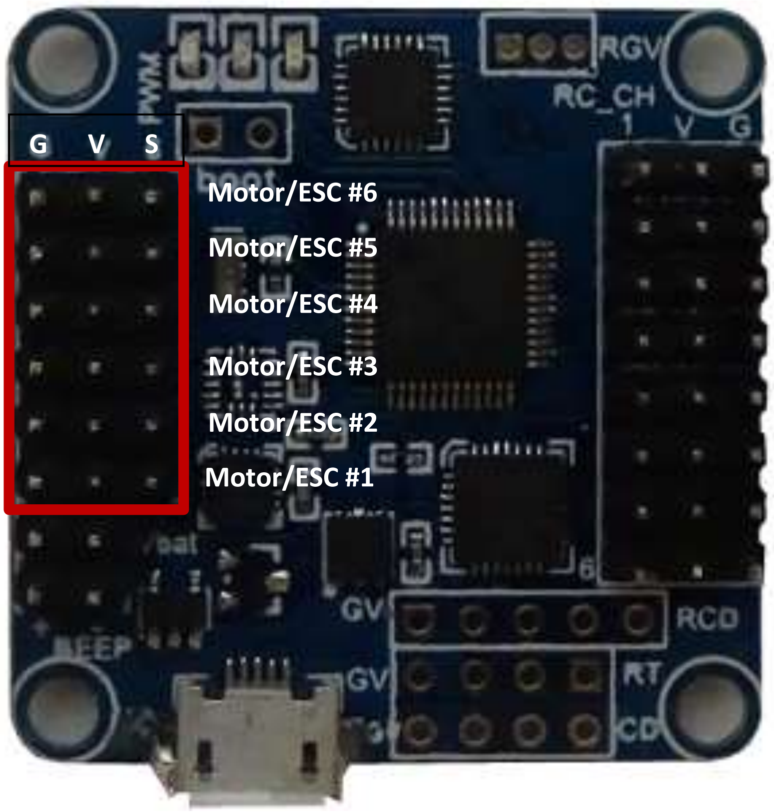
- Using a small flat blade screwdriver or knife to gently pry up the tab that holds the pin in place
- Sliding out the pin from the servo connector
- Wrap the pulled pin(s) using electric tape or shrink tubing so that there is no chance of a shortage
- Attach the pins to the existing wire with electric tape or shrink tubing

MOTOR/ESC CONNECTIONS:

Motors/ESCs are connected to the six sets of 3 pin headers that are located on the left hand side of the board. Motor/ESC #6 is at the top while motor/ESC #1 is at the bottom.

Connect the ground (G), voltage (V) and signal (S) wires from only one of the ESCs (usually ESC #1) to the Flip32+ and for the remaining ESCs only connect the signal (S) wire. In the following picture:

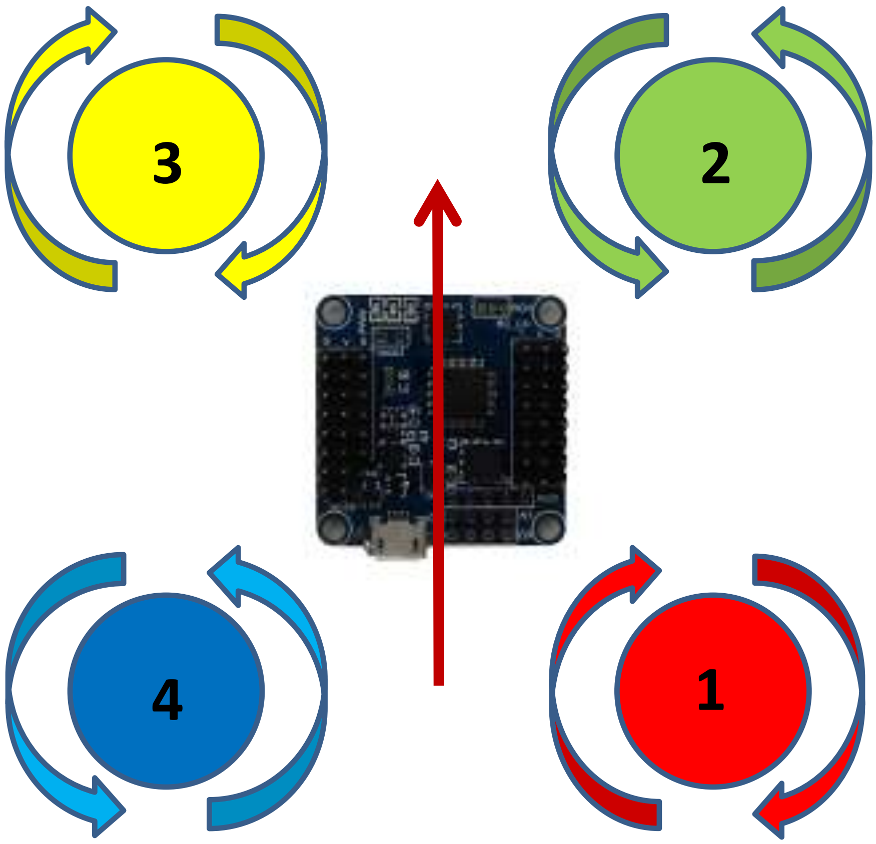
- The outer most pin on the left is the ground pin (G)
- The middle pin is the power/voltage pin (V)
- The inner most pin on the right is the signal pin (S)



QUADCOPTER X MOTOR LAYOUT:

This is the motor layout for a Quadcopter in an X configuration. Please note that the direction that the motor is spinning is the direction of the motor when looking at it from above. The red arrow indicates the forward direction of the multirotor. You can verify the motor layout by using the Motor Test function in the Google Chrome BaseFlight Configurator.

For other motor layouts, please see the Flip32+ product page on ReadyToFlyQuads.COM.



PROPELLER TYPES AND SPIN DIRECTION:

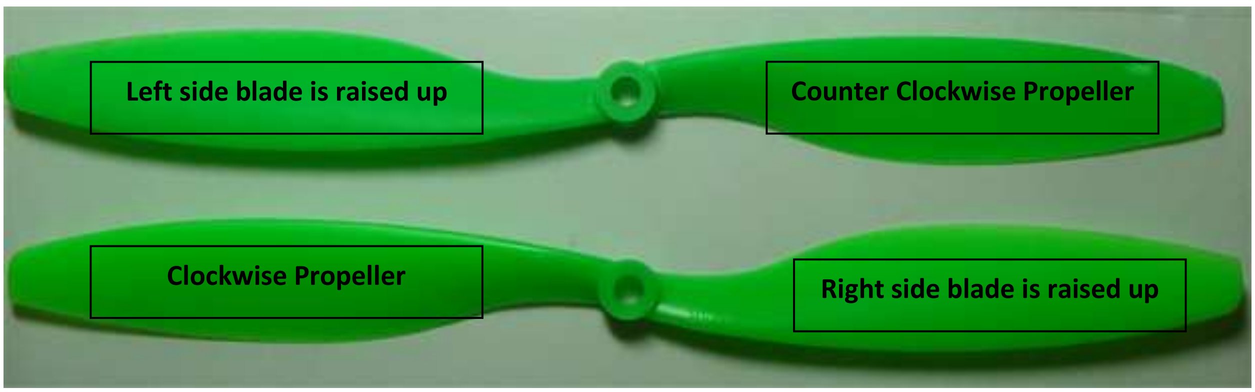
Multirotors use two types of propellers:

- Tractor, which rotates in a counter clockwise direction
- Pusher, which rotates in a clockwise direction

One way to tell which propeller is which type is to look at the lettering on the propeller. Some manufacturers will label their propellers with an L for left or CCW and an R for right or CW. But if the manufacturer omits the letter, then the other method is to look at propeller blades:

- Place the propeller flat on a table
- If the left side blade is raised up from the table, then it's a left or counter clockwise propeller
- If the right side blade is raised up from the table, then it's a right or clockwise propeller

When connecting the propellers to the motors, just match the propeller direction to the motor direction.

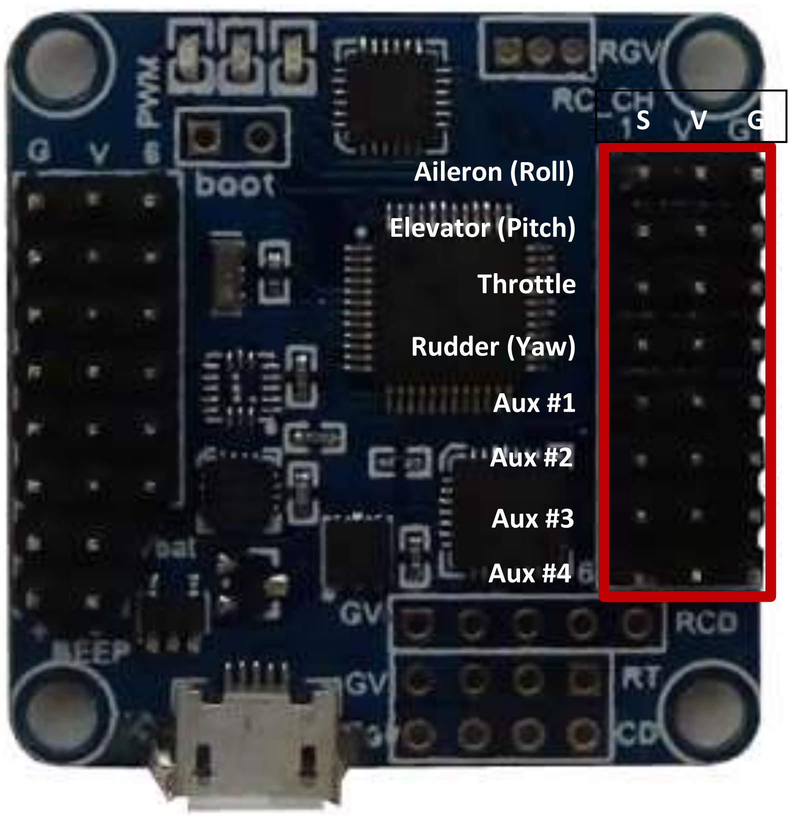


RECEIVER CONNECTIONS:

A receiver is connected to the eight sets of 3 pin headers that are located on the right hand side of the board. In a basic setup, only the first four sets of 3 pin headers are used, which are roll, pitch, throttle and yaw. The remaining four are auxiliary connections.

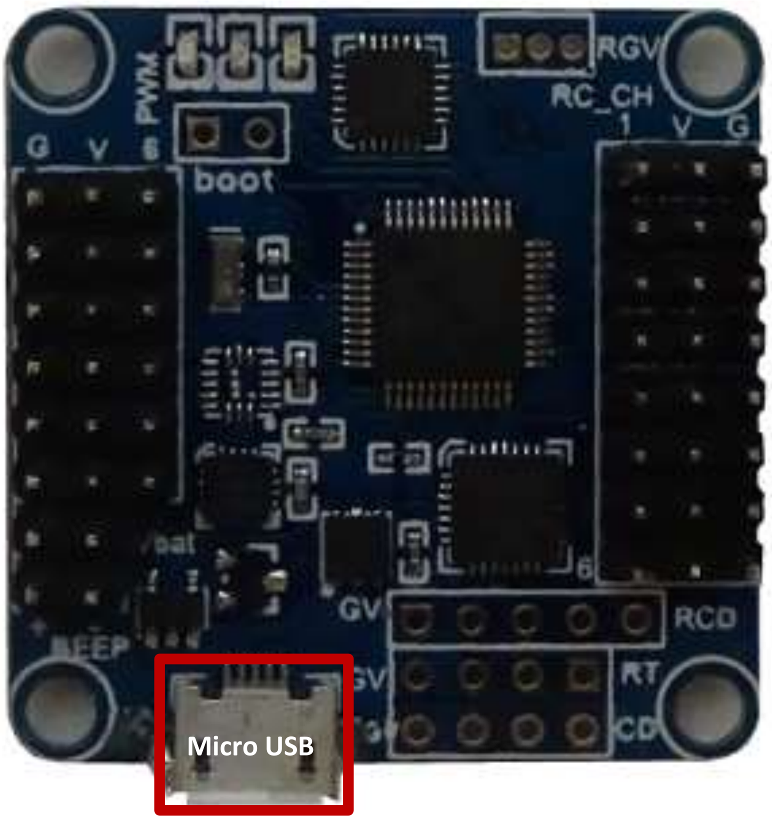
Connect the signal (S), voltage (V) and ground (G) wires from only one receiver channel (usually Throttle) to the Flip32+ and for the remaining channels only connect the signal (S) wire. In the following picture:

- The inner most pin on the left is the signal pin (S)
- The middle pin is the voltage pin (V)
- The outer most pin on the right is the ground pin (G)



MICRO USB:

The micro USB port is located at the bottom (rear) of the Flip32+ and is used to connect the Flip32+ to your pc or laptop via a USB to micro USB cable. Once connected, the Flip 32+ firmware can be flashed or updated or its configuration changed. Please note that when using BaseFlight firmware, the micro USB port is configured to share the same UART as the OSD and Blue Tooth so the OSD and Blue Tooth must be disconnected when using the micro USB port.



BLUE TOOTH CONNECTION:

A Blue Tooth module is connected to the single 4 pin header that is located to the right of the micro USB port. You will need to solder the header pins on yourself as they are not included.

Once connected, the Blue Tooth module lets you connect to your Flip32+ via a wireless connection from your pc, laptop or Android device. Please note that you cannot have a USB cable plugged into the micro USB port when utilizing the Blue Tooth connection. In the following picture:

- The first pin is the ground pin (G)
- The second pin is the voltage pin (V)
- The third pin is the receive pin (RX)
- The fourth pin is the transmit pin (TX)



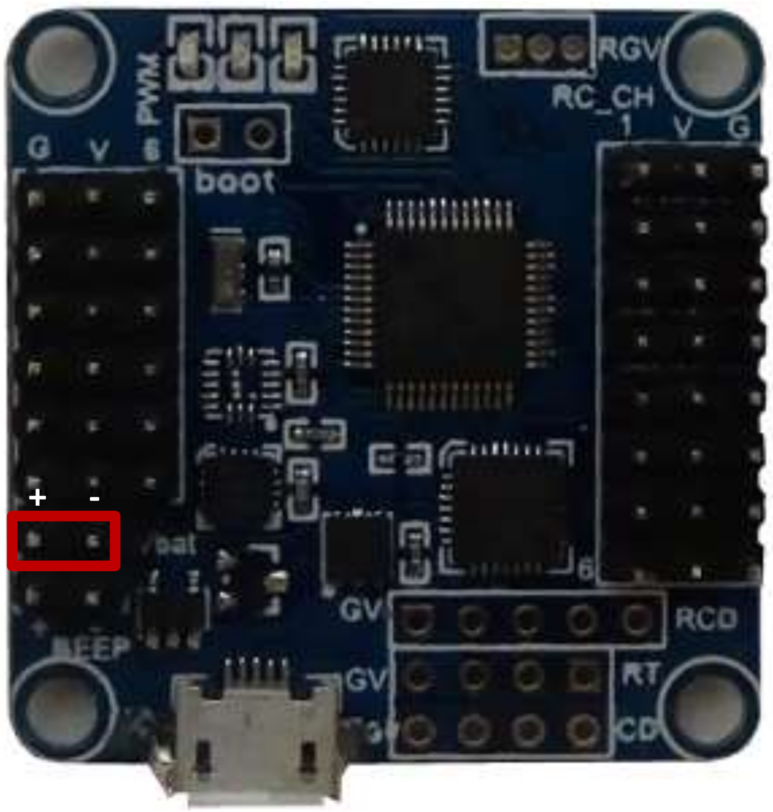
The Blue Tooth module is connected to the Flip32+ in the following manner:

- The receive pin (RX) on the Flip 32+is connected to the transmit (TX) pin on the Blue Tooth module
- The transmit pin (TX) on the Flip 32+ is connected to the receive (RX) pin on the Blue Tooth module
- The voltage (V) pin is connected to the voltage (VCC) pin on the Blue Tooth module
- The ground (G) pin is connected to the ground (G) pin on the Blue Tooth module

VOLTAGE BATTERY (VBAT) CONNECTION:

The VBAT connector is a single 2 pin header that is located on the left hand side of the board just below the motor/ESC pin headers. This connector lets the Flip32+ monitor the multirotor main battery voltage and works in conjunction with the BEEP connector in order to produce a beeping sound when the battery voltage is too low. Connect a two wire cable between your power distribution board and the VBAT or your multirotor main battery balance lead and the VBAT. In the following picture:

- The outer most pin on the left is the voltage (+) pin
- The inner most pin on the right is the ground (-) pin



BEEP CONNECTION:

The BEEP connector is a single 2 pin header that is located on the left hand side of the board just below the VBAT connector and is used to connect a Piezo style buzzer to the Flip32+. In the following picture:

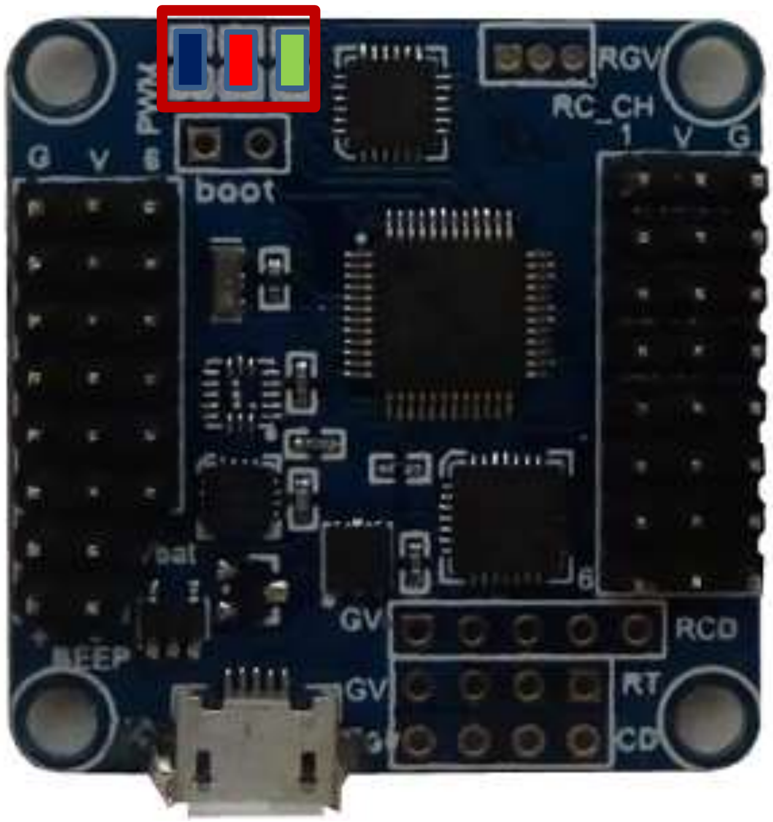
- The outer most pin on the left is the voltage (+) pin
- The inner most pin on the right is the ground (-) pin



STATUS LEDs:

The three status LEDs are located at the top (front) of the Flip32+. In the following picture:

- The outer most led on the left is the power led and is Blue in color
- The middle led is a status led and is Red in color
- The inner most led on the right is a status led and is Green in color



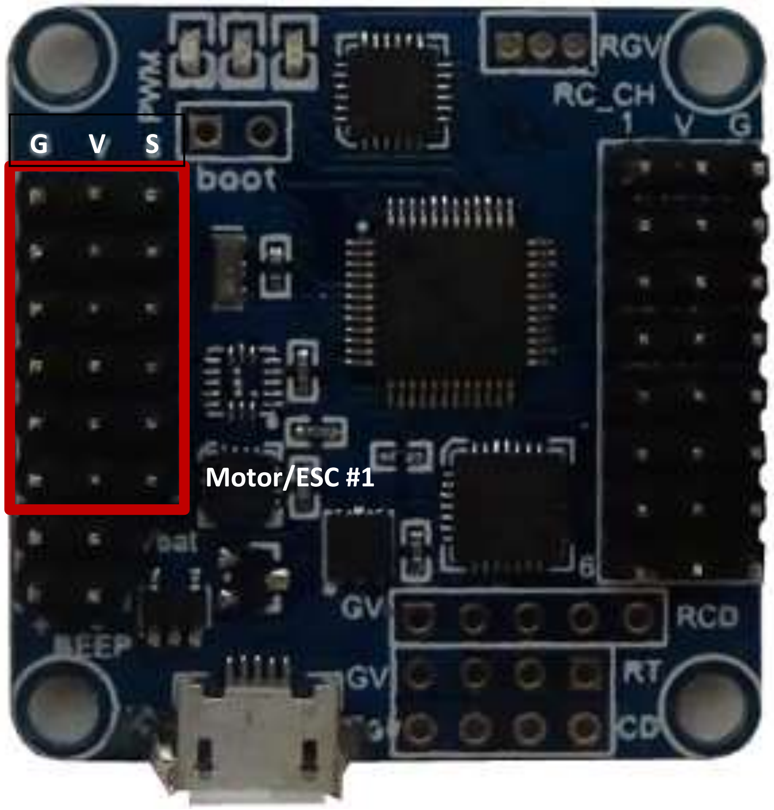
LED STATES:

EVENT	LEFT BLUE LED	MIDDLE RED LED	RIGHT GREEN LED
Connect to pc/laptop	Solid	Blinks then turns off	Blinks then turns off
Powered on	Solid	Blinks then turns off	Blinks then turns off
Flashing Firmware	Solid	Solid then blinks then turns off	Solid then blinks then turns off
Armed	Solid	Off	Solid
Accelerometer Calibration	Solid	Off	Solid then turns off
Magnetometer Calibration	Solid	Off	Blinks rapidly then turns off
Accelerometer Trimming	Solid	Off	Blinks with each stick movement

POWERING THE FLIP32+

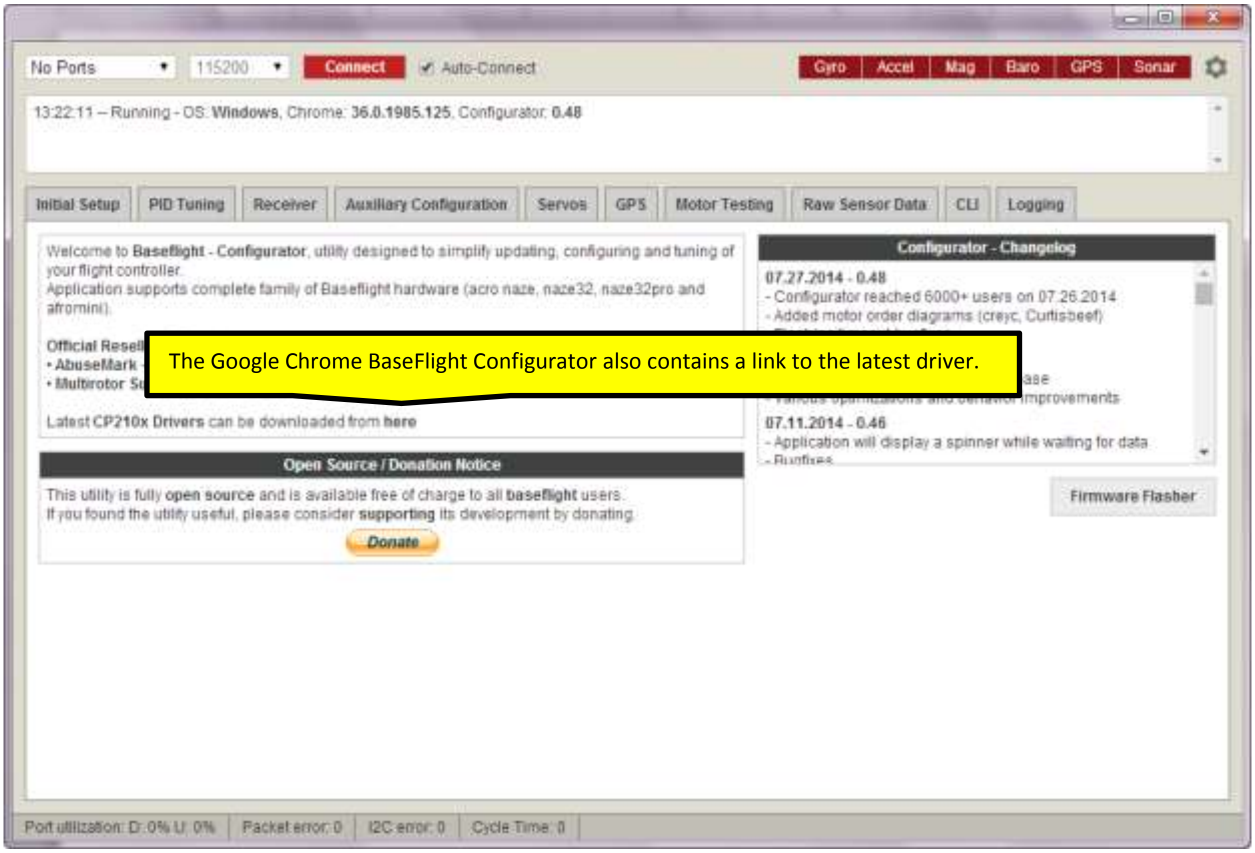
There are several ways to power the Flip32+ but the easiest method is to use the 5V BEC wire from ESC #1. Once powered, the Flip32+ can then be used to power additional devices, such as the receiver and Blue Tooth module.

- Connect ESC #1 to the motor/ESC connection #1 on the Flip32+ with all three wires (G, V and S) intact
- Connect the remaining ESCs utilizing only the signal (S) wire



THE FLIP32+ DRIVER:

In order to be able to communicate to the Flip 32+, your pc/laptop requires a CP210x USB to UART Bridge VCP driver. Depending on your operating system and hardware, your pc or laptop may recognize the UART Bridge once it is plugged in. If not, you can download the driver from:
http://www.silabs.com/products/mcu/pages/usbtouartbridgevcpdrivers.aspx



BASEFLIGHT FIRMWARE:

The best and easiest way to obtain the latest BaseFlight firmware is to use the Google Chrome BaseFlight Configurator. However, this requires an internet connection which may not always be available. For those moments, you can download the firmware to your pc or laptop and then access it from the Google Chrome BaseFlight Configurator.

Latest production release of BaseFlight Firmware:
https://code.google.com/p/afrodevices/downloads/list

Latest development release of BaseFlight Firmware:
https://github.com/multiwii/BaseFlight/blob/master/obj/BaseFlight.hex

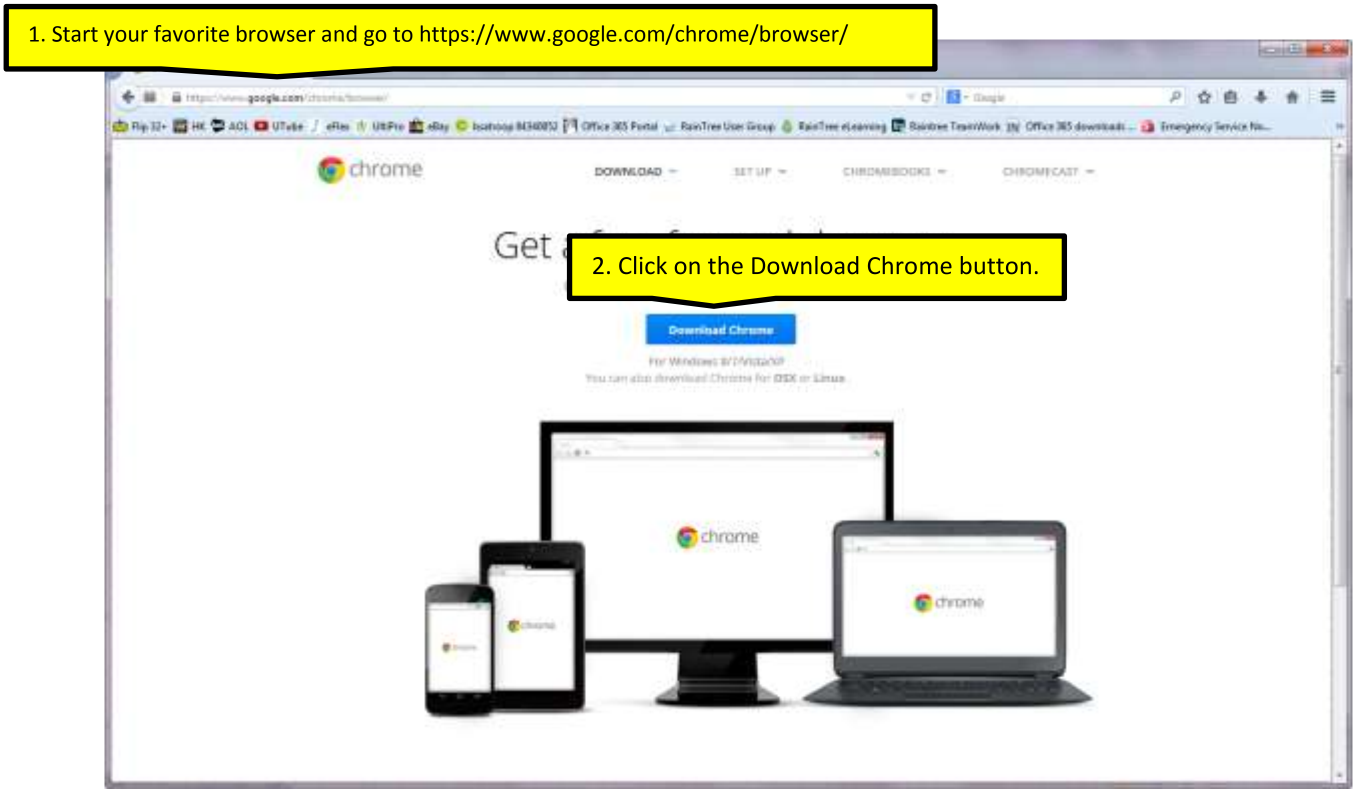
GOOGLE CHROME BASEFLIGHT CONFIGURATOR:

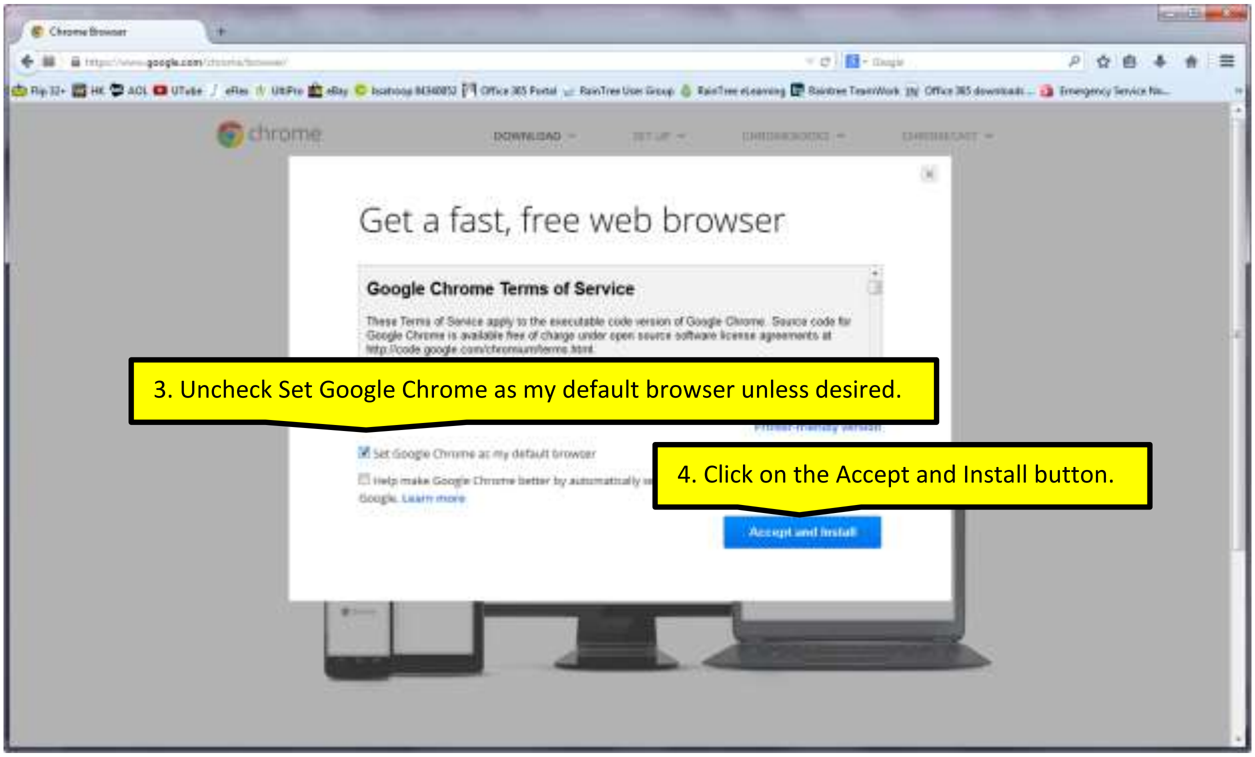
The Google Chrome BaseFlight Configurator is available from the Google Chrome store for free but requires a Google account and the Google Chrome web browser to access, download and use.

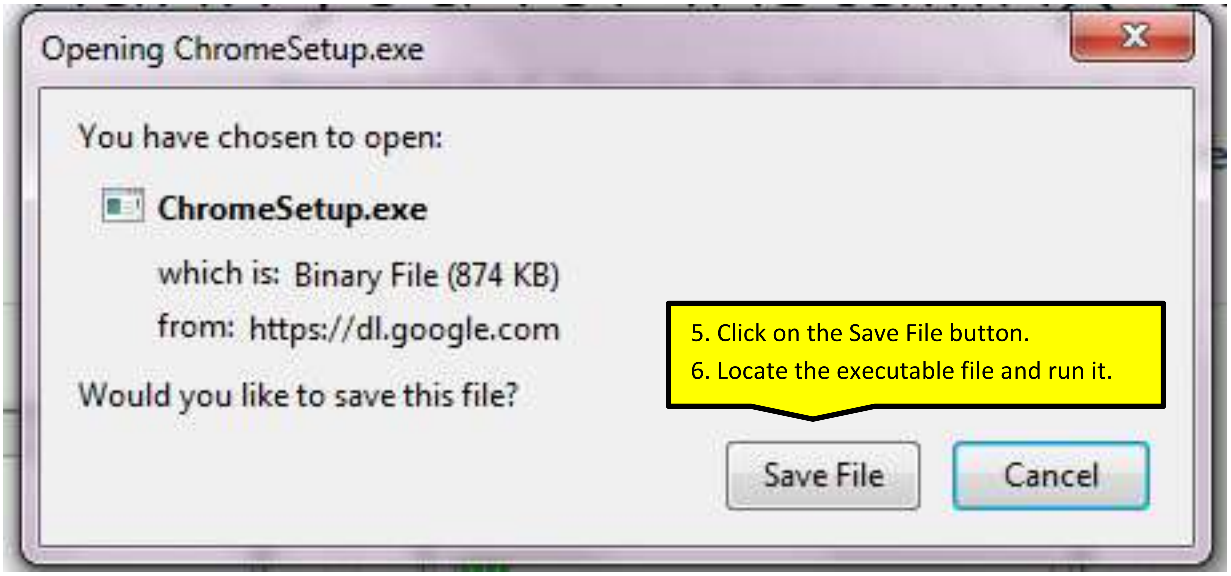
- Download and install the Google Chrome web browser from: https://www.google.com/chrome/browser/
- Download and install the Google Chrome BaseFlight Configurator from the Google Chrome store: https://chrome.google.com/webstore/category/apps

INSTALLING GOOGLE CHROME:

Please note that Google may change the installation screens and/or the installation process for Google Chrome at any time so let the installer beware. ☺




Get a fast, free web browser
Google Chrome Terms of Service
3. Uncheck Set Google Chrome as my default browser unless desired.
Set Google Chrome as my default browser
4. Click on the Accept and Install button.
Accept and Install

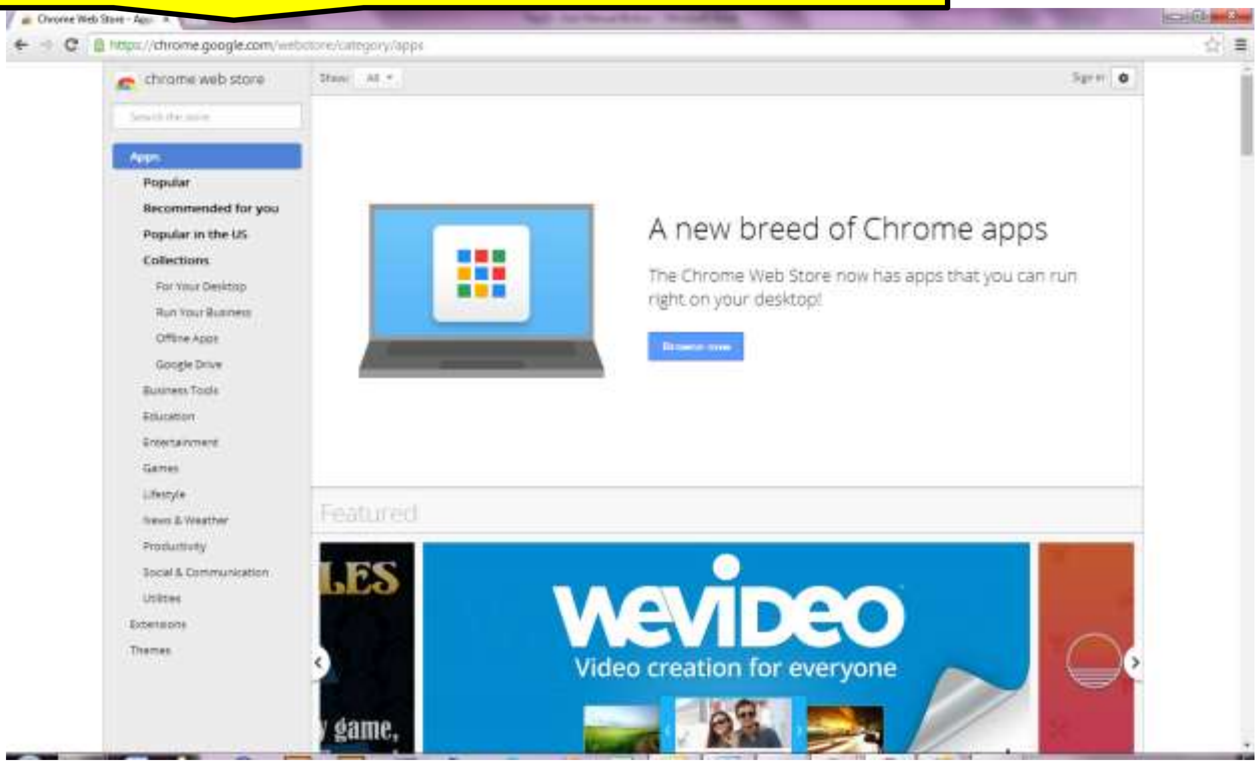


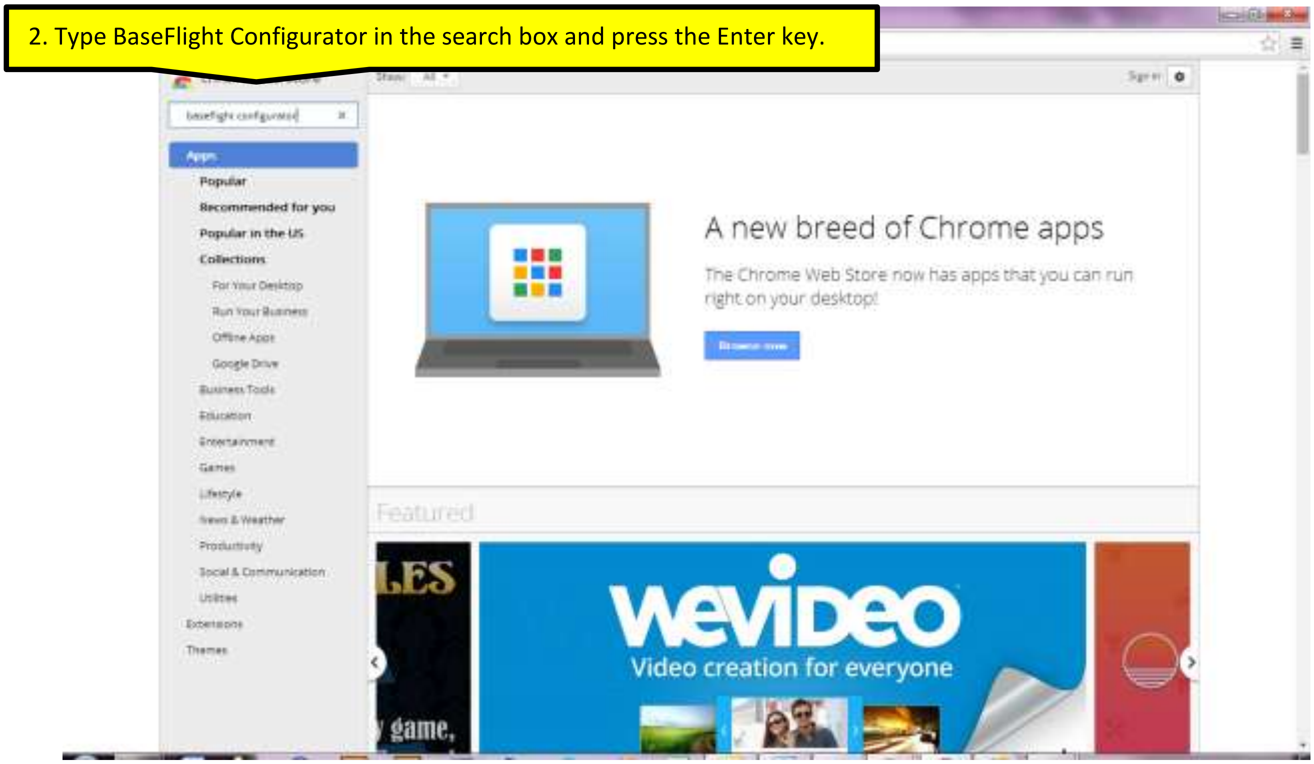
7. The install will place the Google Chrome icon on your desktop.

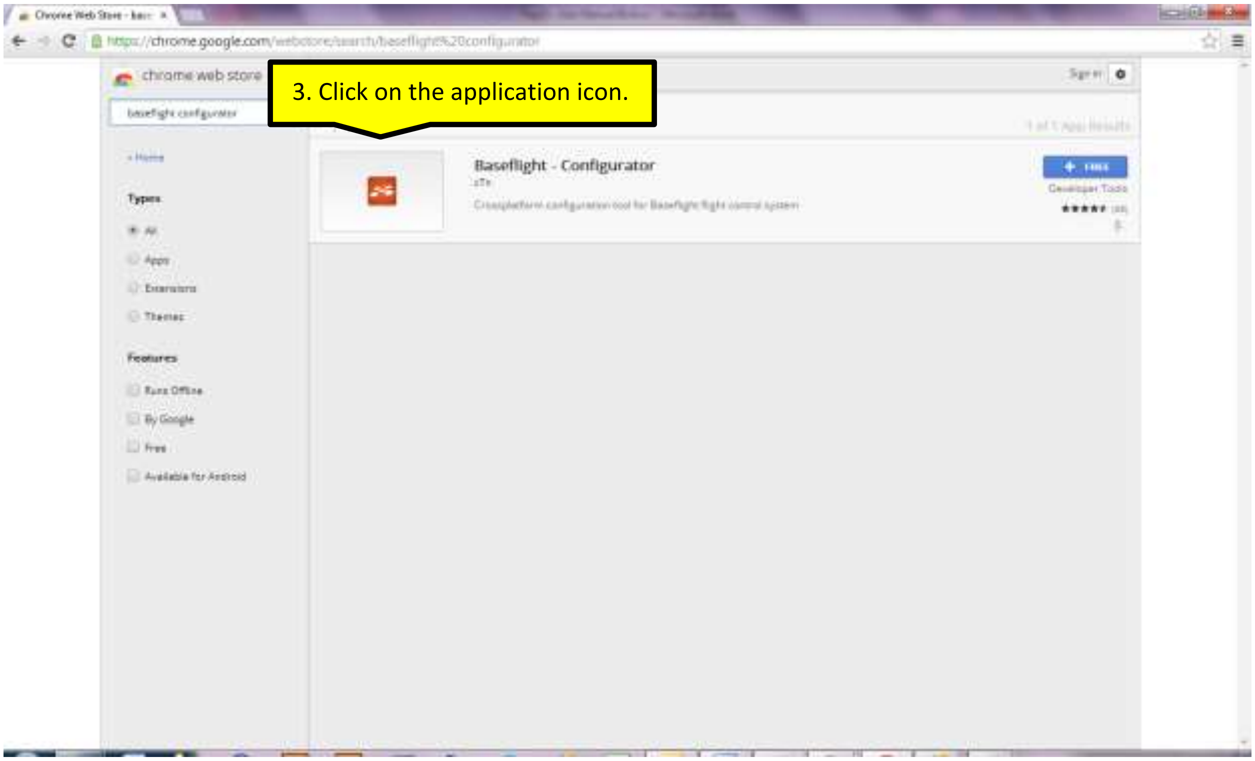
INSTALLING THE GOOGLE CHROME BASEFLIGHT CONFIGURATOR:

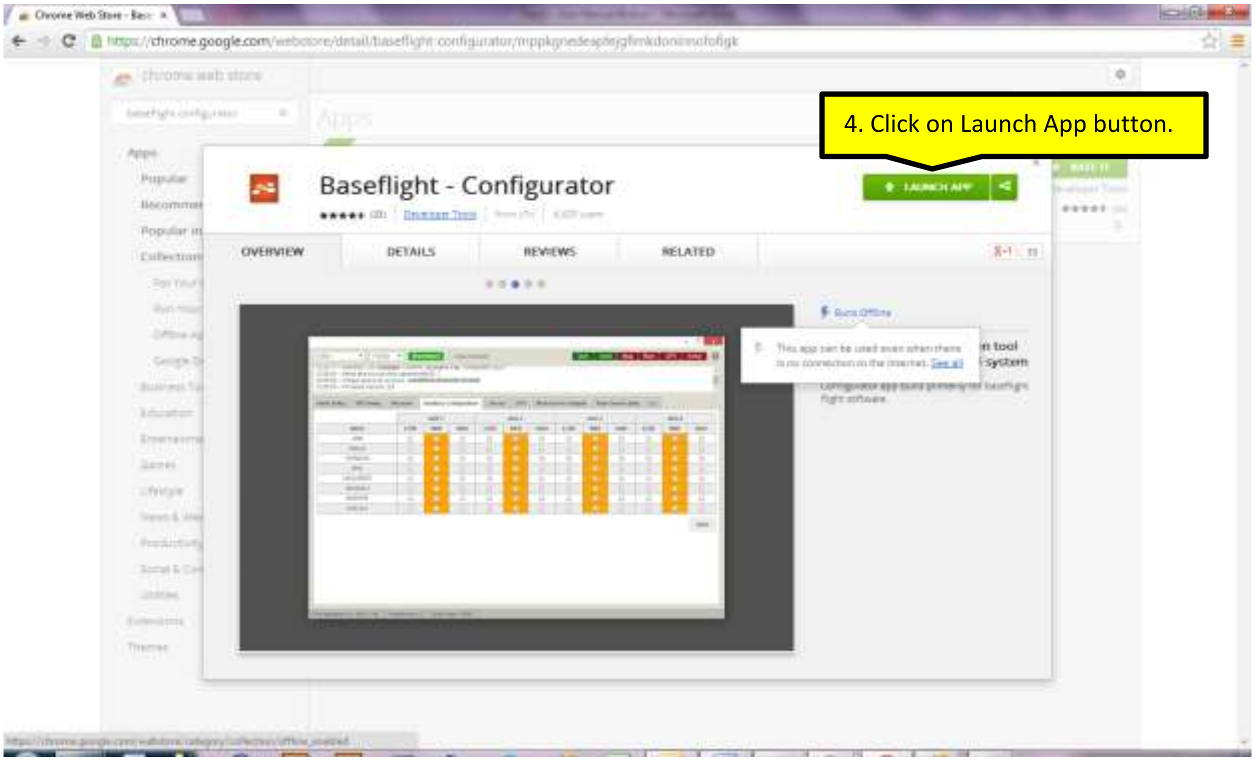
Please note that Google may change the installation screens and/or the installation process for Google Chrome BaseFlight Configurator at any time so let the installer beware. ☺

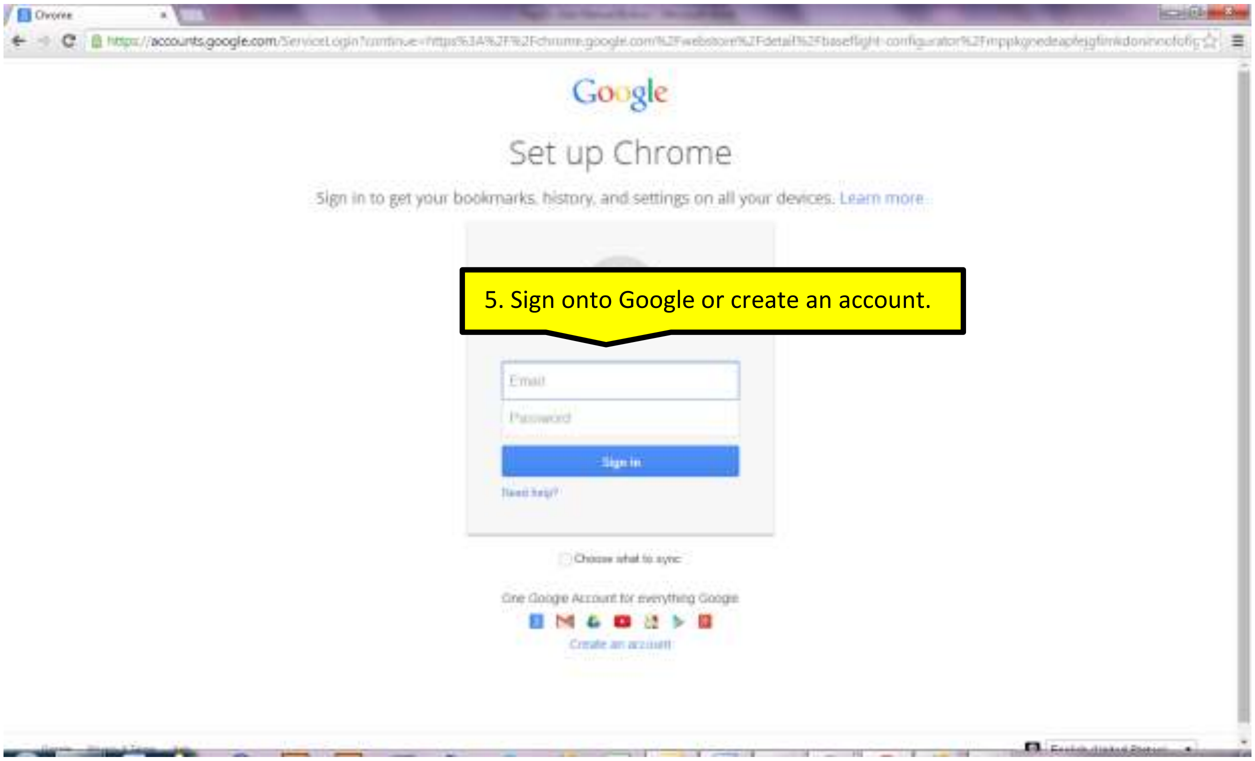
1. Start Google Chrome and go to https://chrome.google.com/webstore/category/apps

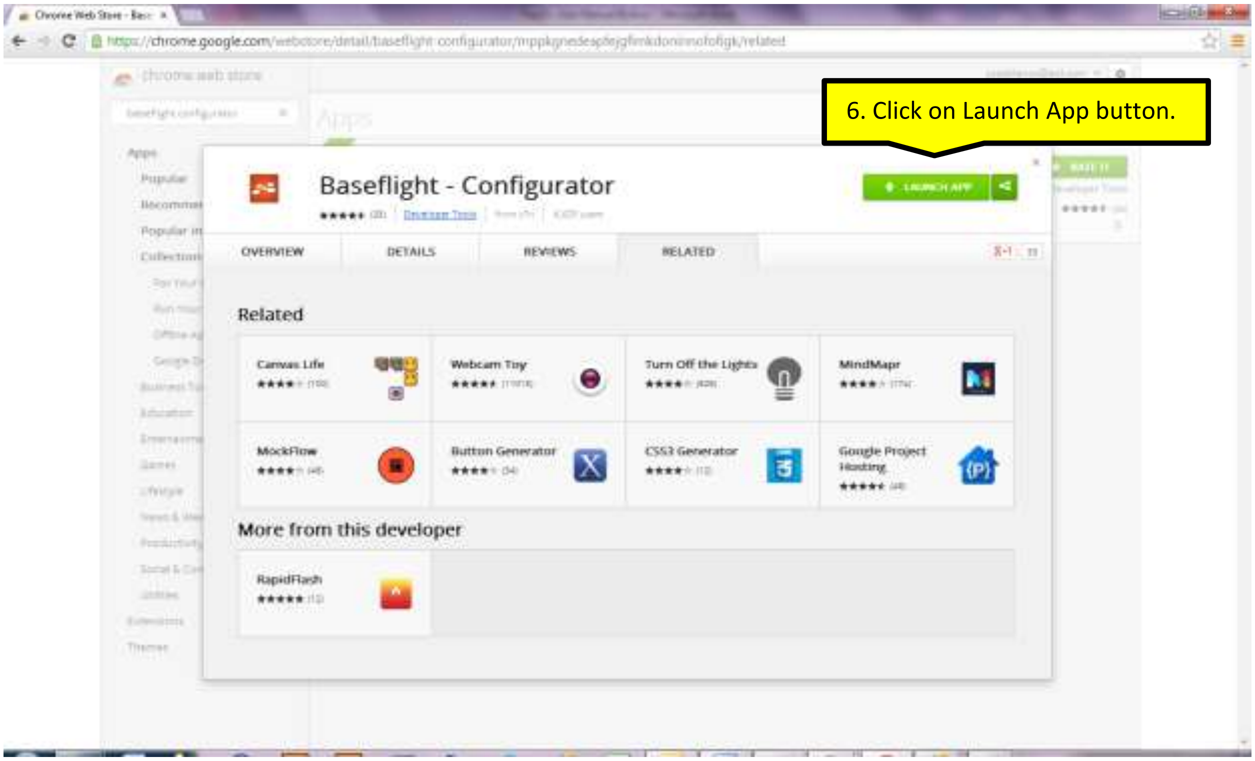



2. Type BaseFlight Configurator in the search box and press the Enter key.
Apps
Popular
Recommended for you
Popular in the US
Collections
For Your Desktop
Run Your Business
Offline Apps
Google Drive
Business Tools
Education
Entertainment
Games
Lifestyle
News & Weather
Productivity
Social & Communication
Utilities
Extensions
Themes
A new breed of Chrome apps
The Chrome Web Store now has apps that you can run right on your desktop!
Featured
wevideo
Video creation for everyone

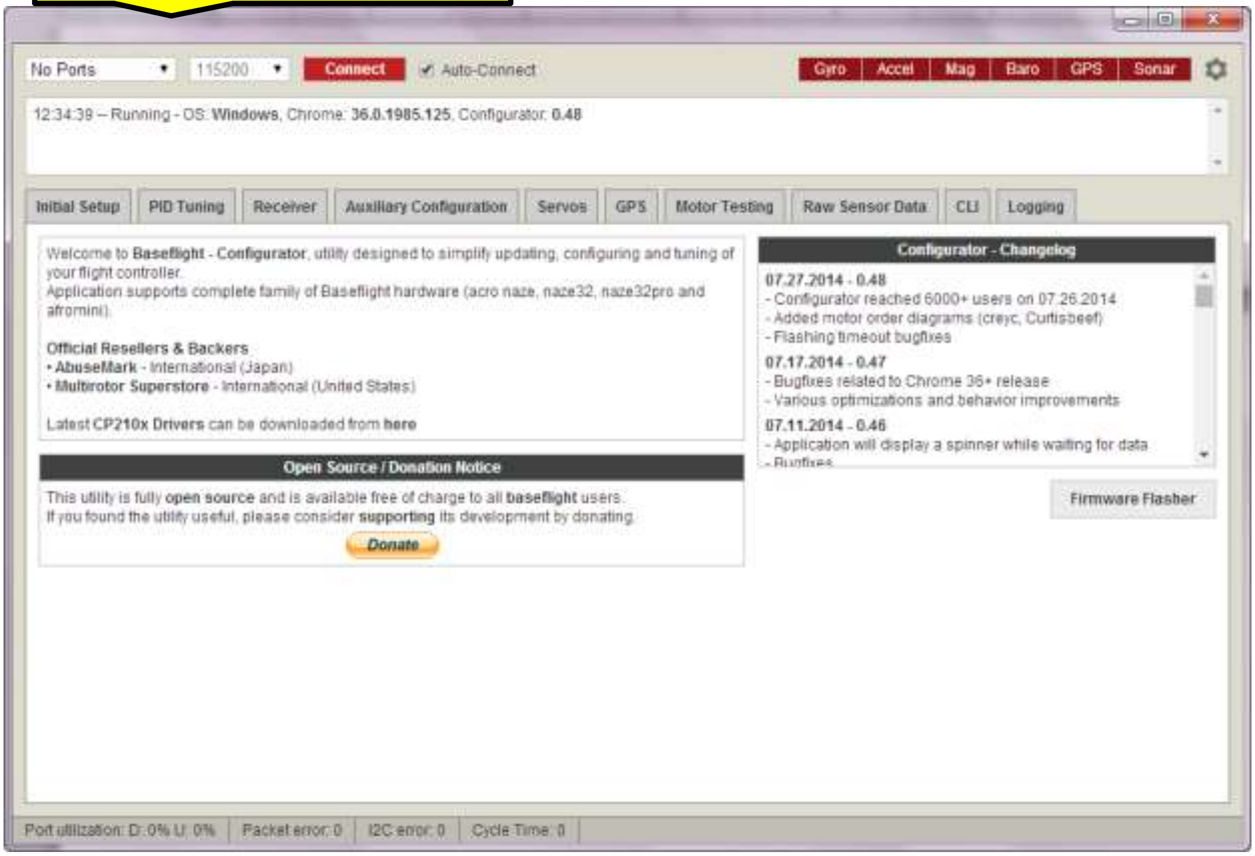

https://chrome.google.com/webstore/search/baseflight%20configurator
chrome web store
3. Click on the application icon.
Baseflight - Configurator
Types
All
Apps
Extensions
Themes
Features
Runs Offline
By Google
Free
Available for Android


4. Click on Launch App button.
Baseflight - Configurator
OVERVIEW
DETAILS
REVIEWS
RELATED


Google
Set up Chrome
Sign in to get your bookmarks, history, and settings on all your devices. Learn more
5. Sign onto Google or create an account.
Sign in


6. Click on Launch App button.
Baseflight - Configurator
OVERVIEW
DETAILS
REVIEWS
RELATED
Related
Canvas Life
Webcam Toy
Turn Off the Lights
MindMapr
MockFlow
Button Generator
CSS3 Generator
Google Project Hosting
More from this developer
RapidFlash

7. The BaseFlight Configurator appears.



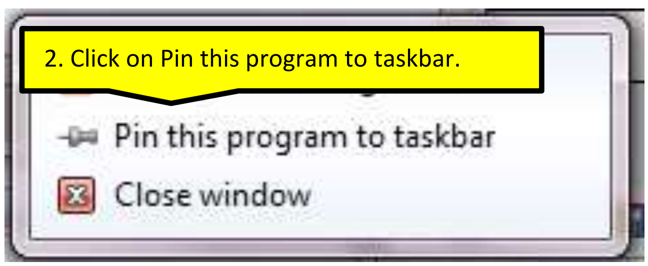
The BaseFlight Configurator is enabled to run on your pc/laptop without the need for an internet connection. I was able to set this up my pc at home but the same process failed on two separate laptops running the same version of Windows. In addition, Google installed a Quick Launch Application icon on my taskbar so that I could launch the Google Chrome applications easily but that also failed on the laptops.

Without having to go through that process, I figured out another way.

1. With the BaseFlight Configurator running, locate the application icon on your taskbar and right click on it.



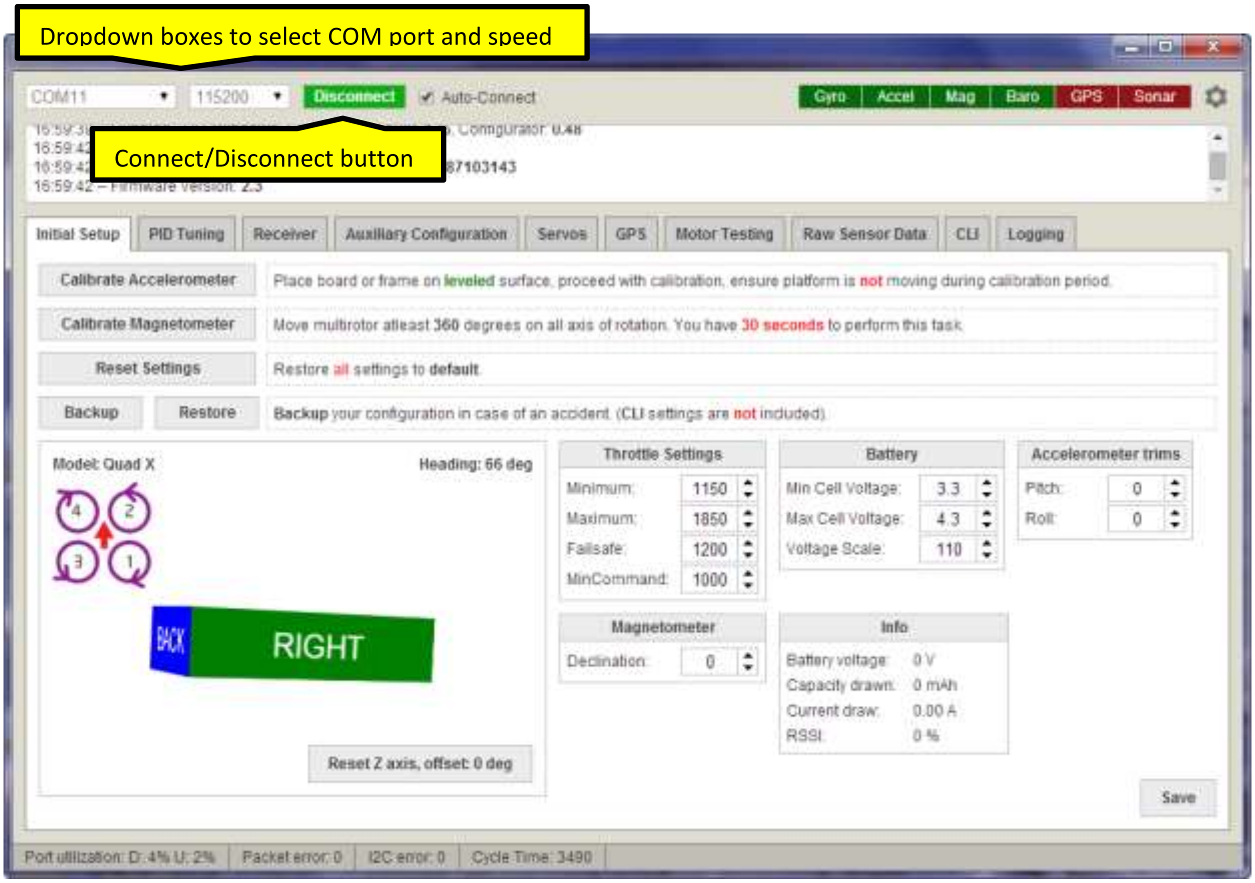
2. Click on Pin this program to taskbar.

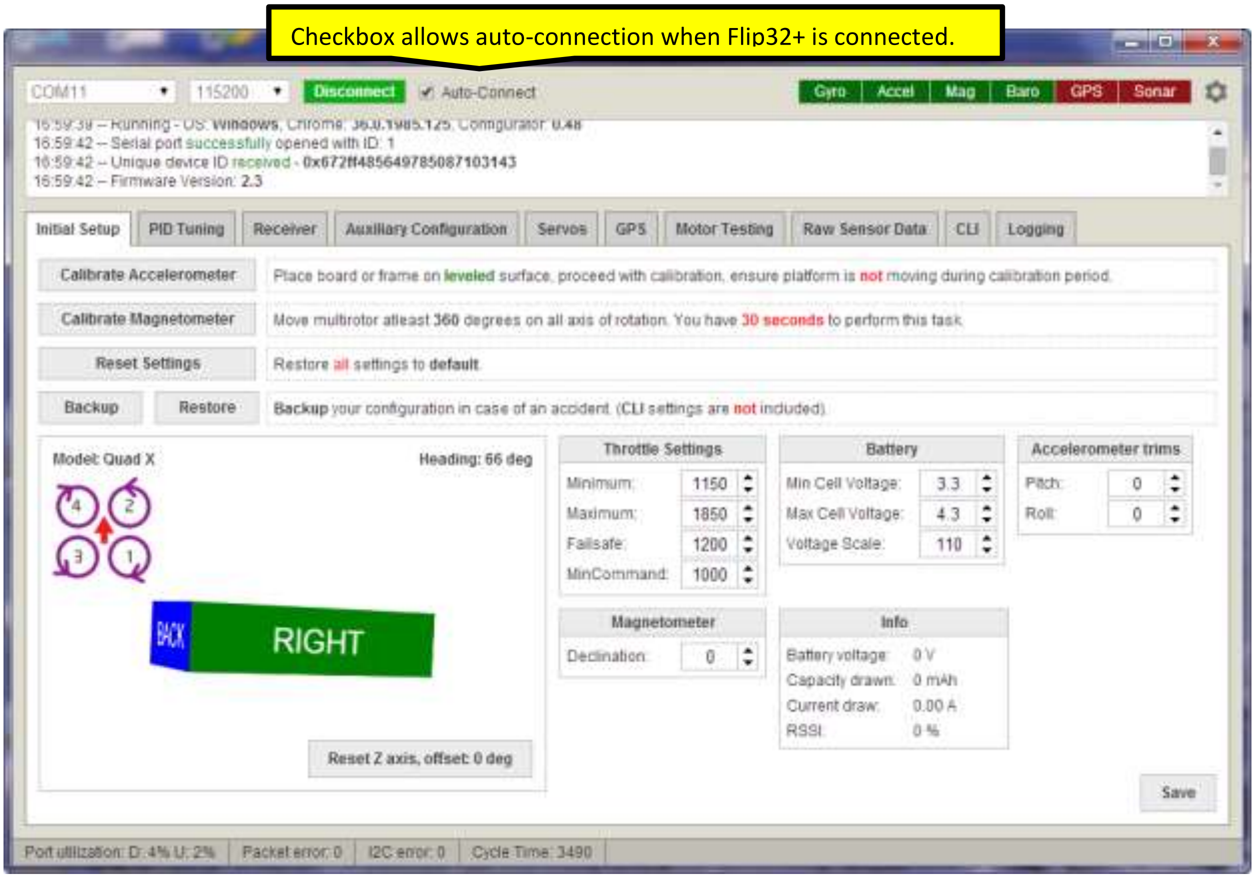


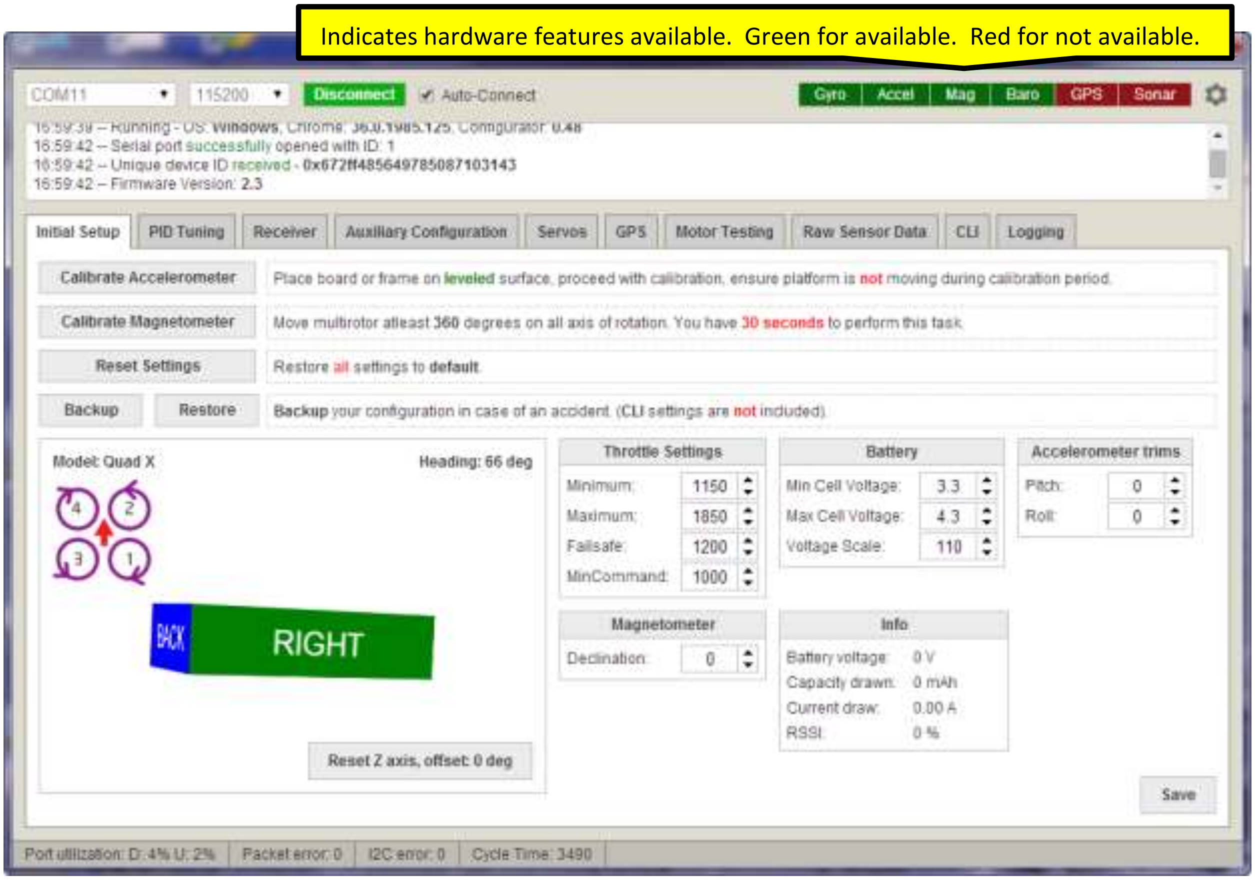
3. You can now run the configurator just by clicking twice on the icon.

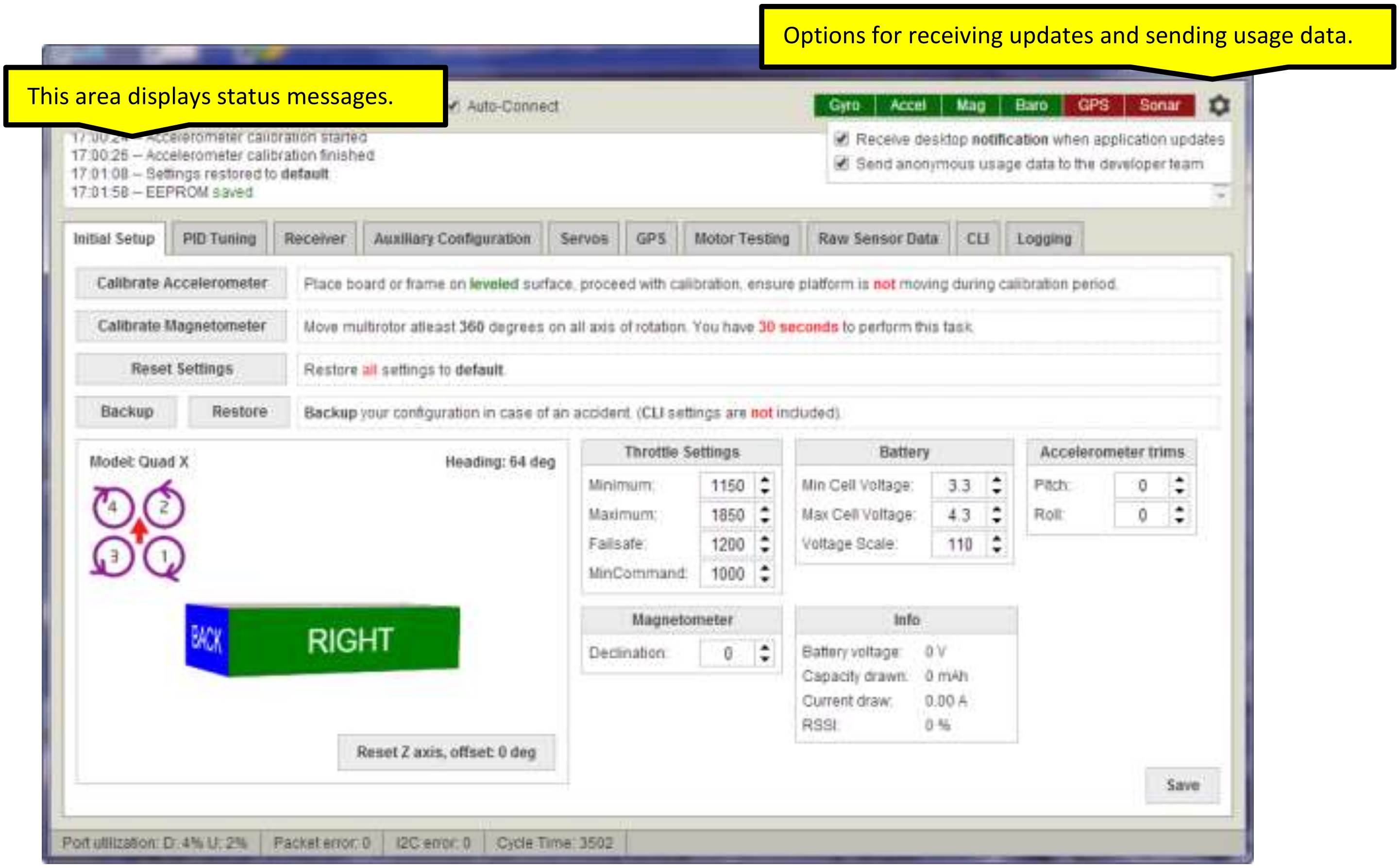


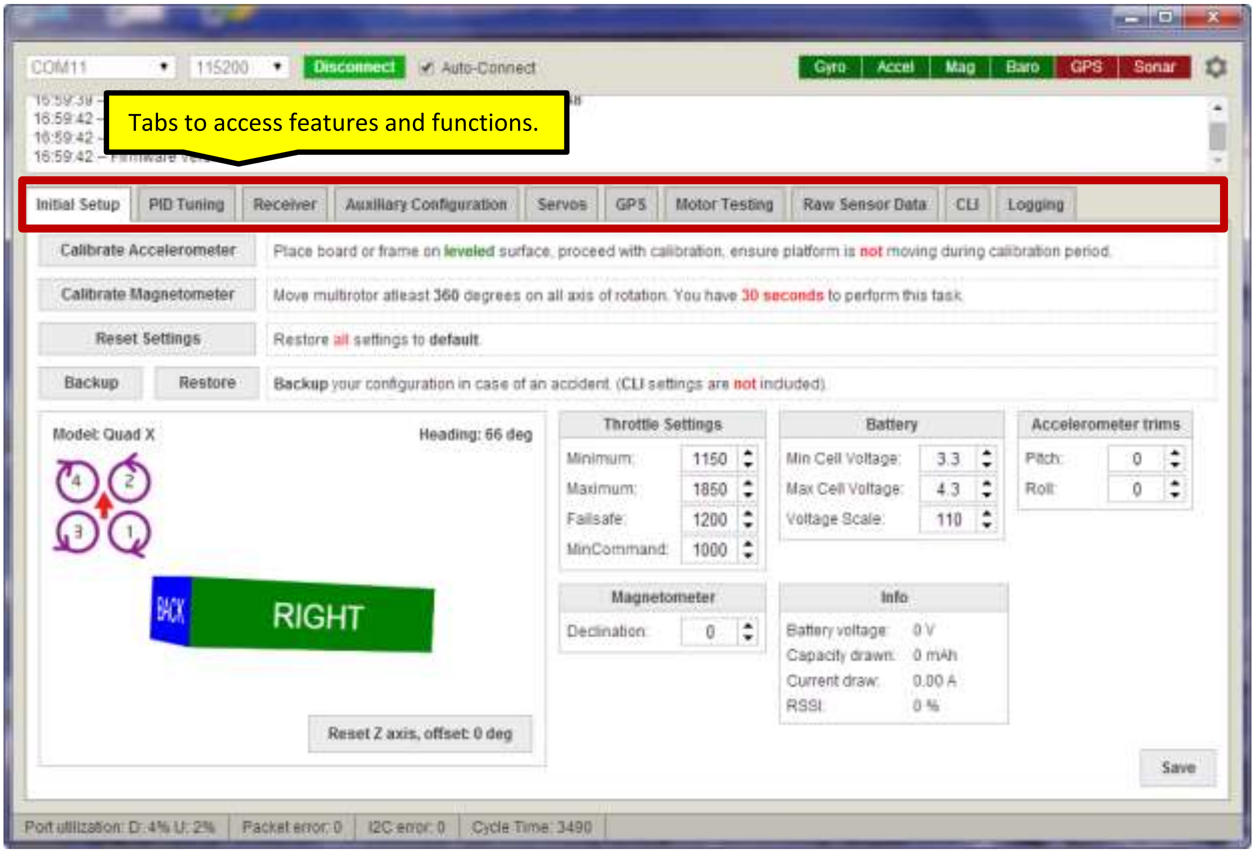
BASEFLIGHT CONFIGURATOR FEATURES AND BUTTONS:

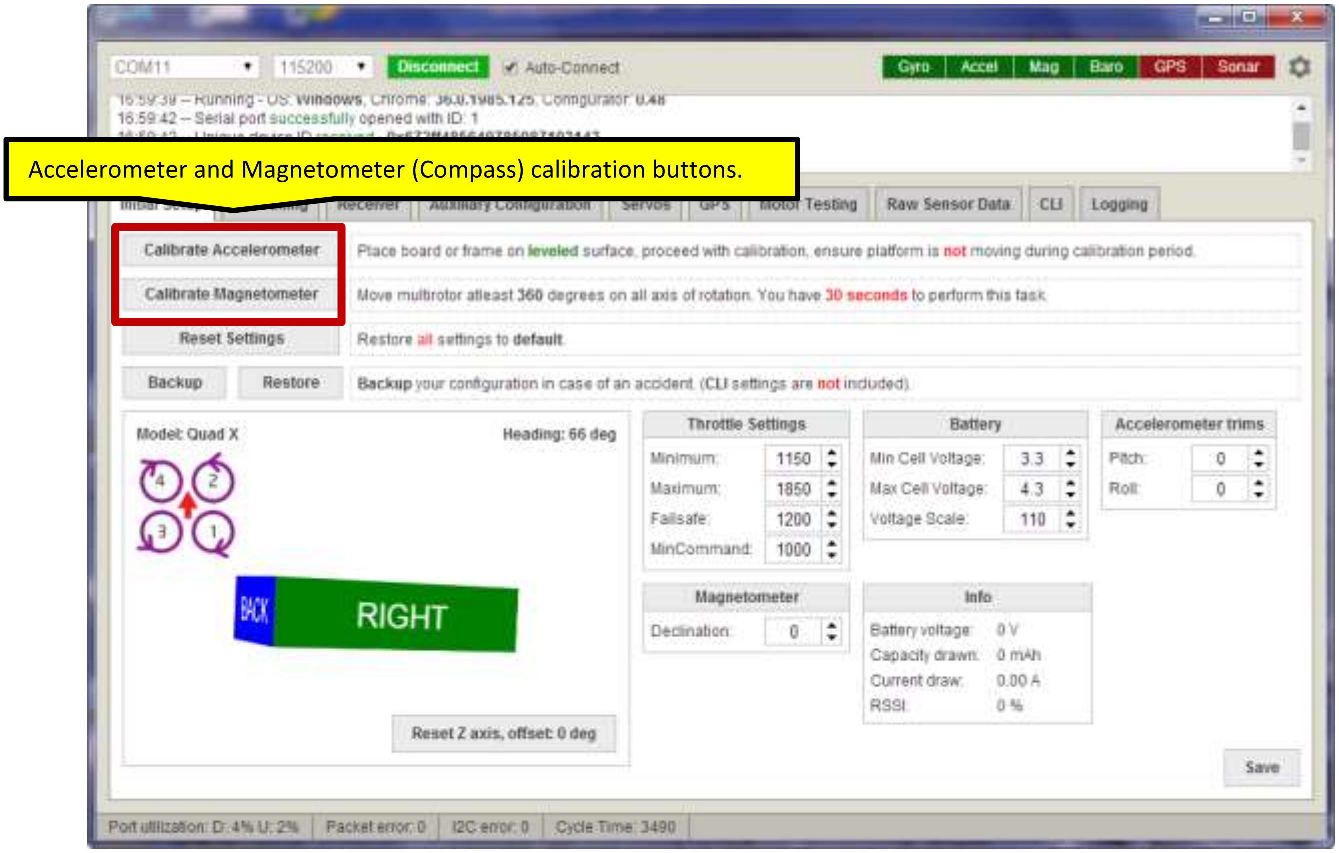


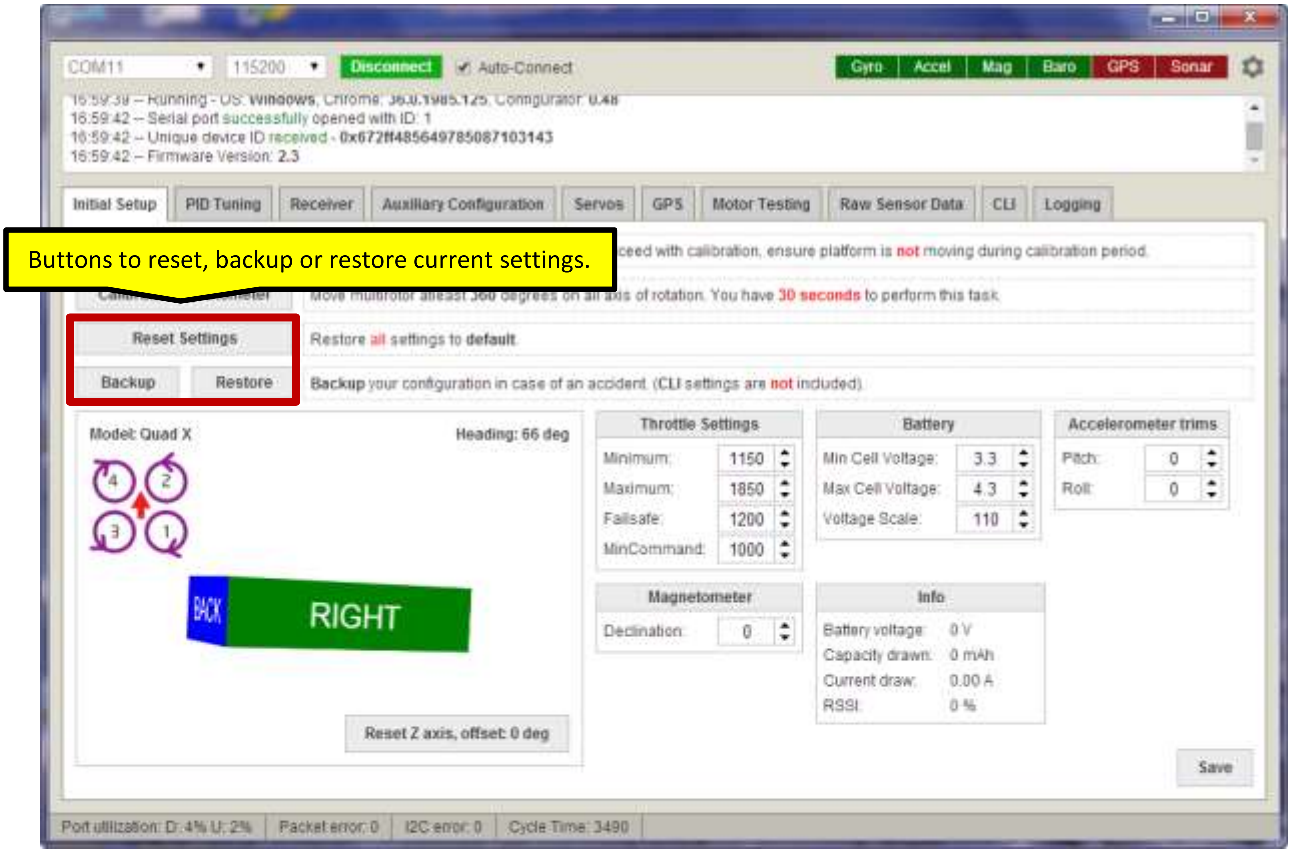

Checkbox allows auto-connection when Flip32+ is connected.
COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
16:59:42 -- Serial port successfully opened with ID: 1
16:59:42 -- Unique device ID received - 0x672ff485649785087103143
16:59:42 -- Firmware Version: 2.3
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task.
Reset Settings
Restore all settings to default.
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included)
Model: Quad X
Heading: 66 deg
RIGHT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Accelerometer trims
Pitch: 0
Roll: 0
Magnetometer
Declination: 0
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3490

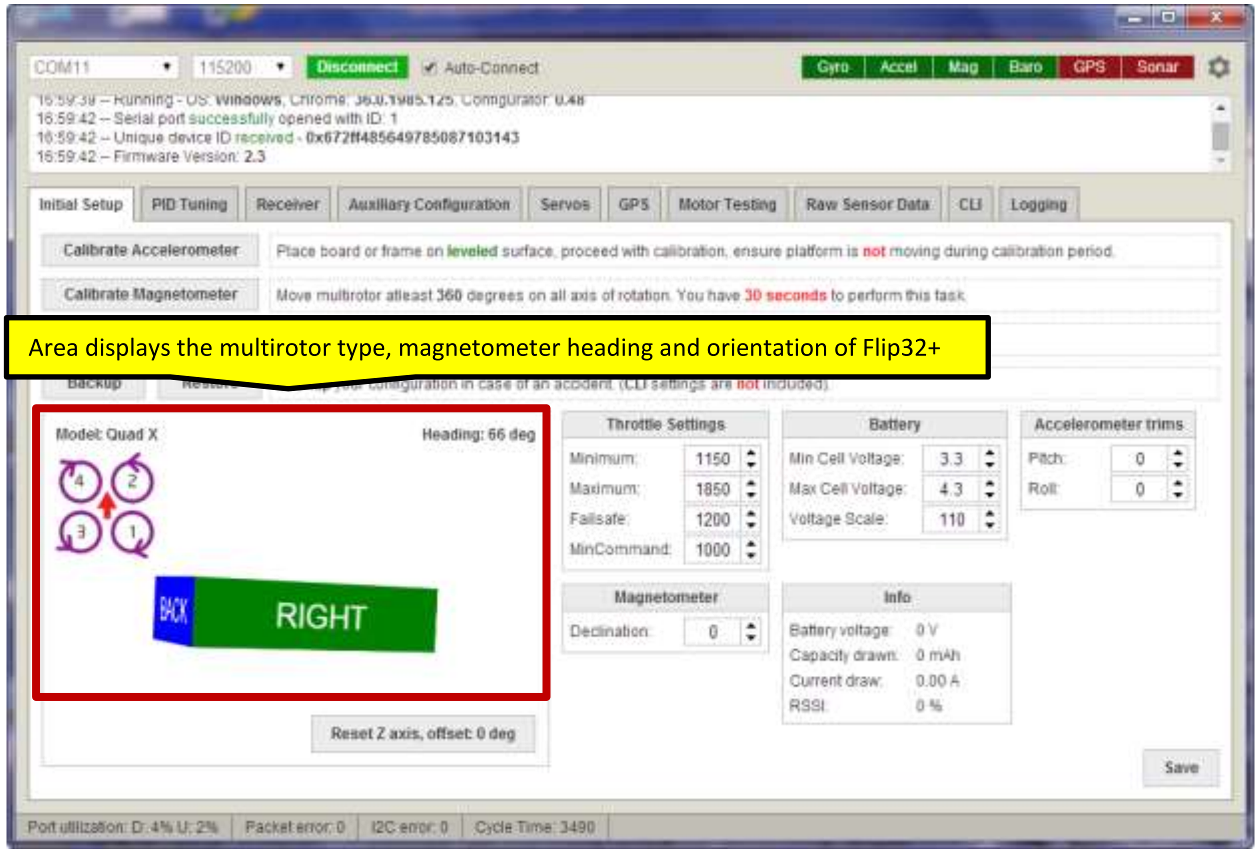

Indicates hardware features available. Green for available. Red for not available.
COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
16:59:42 -- Serial port successfully opened with ID: 1
16:59:42 -- Unique device ID received - 0x672ff485649785087103143
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Restore
Backup your configuration in case of an accident. (CLI settings are not included)
Model: Quad X
Heading: 66 deg
BACK
RIGHT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Accelerometer trims
Pitch: 0
Roll: 0
Magnetometer
Declination: 0
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3490


Options for receiving updates and sending usage data.
This area displays status messages.
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
Receive desktop notification when application updates
Send anonymous usage data to the developer team
17:00:26 – Accelerometer calibration finished
17:01:08 – Settings restored to default
17:01:58 – EEPROM saved
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
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Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task.
Reset Settings
Restore all settings to default.
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included)
Model: Quad X
Heading: 64 deg
BACK
RIGHT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Accelerometer trims
Pitch: 0
Roll: 0
Magnetometer
Declination: 0
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3502

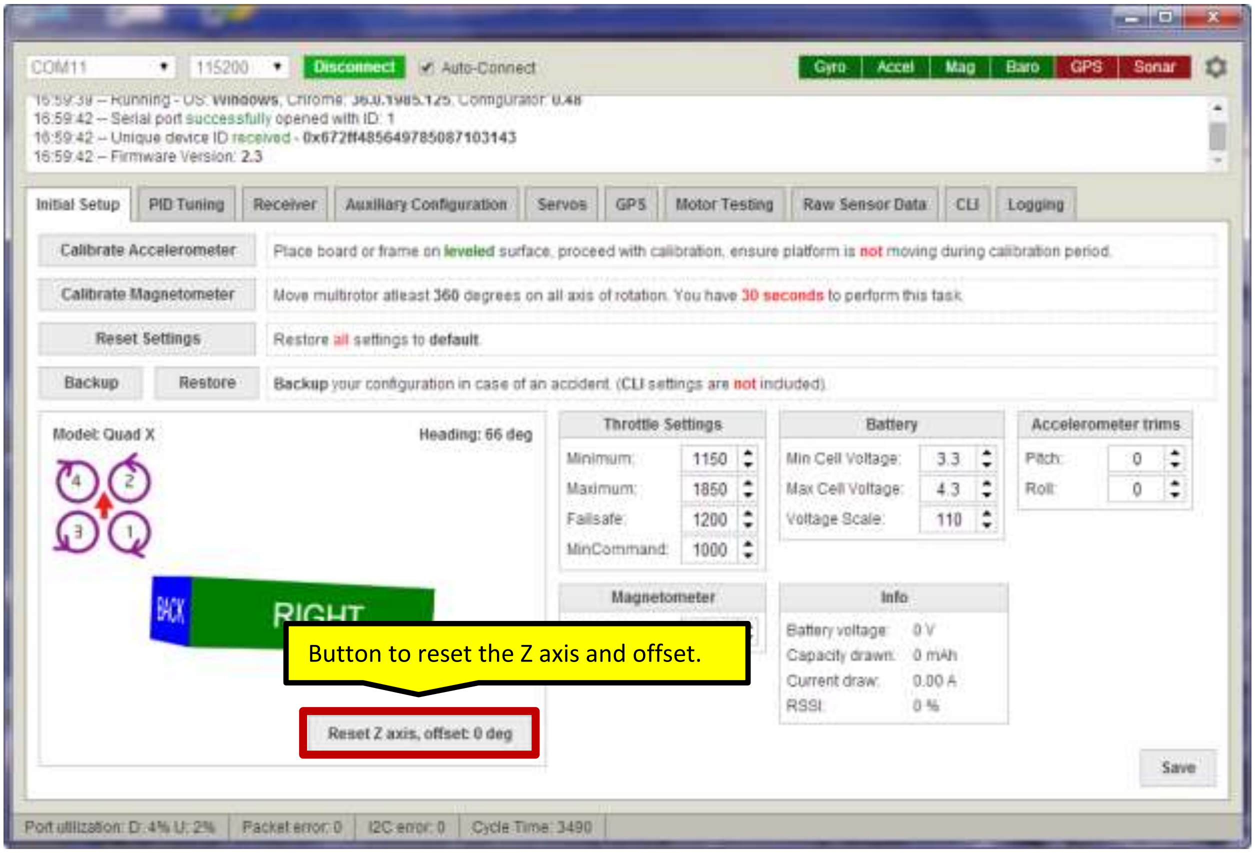

COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
Tabs to access features and functions.
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
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Restore
Backup your configuration in case of an accident. (CLI settings are not included).
Model: Quad X
Heading: 66 deg
BACK
RIGHT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Accelerometer trims
Pitch: 0
Roll: 0
Magnetometer
Declination: 0
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3490

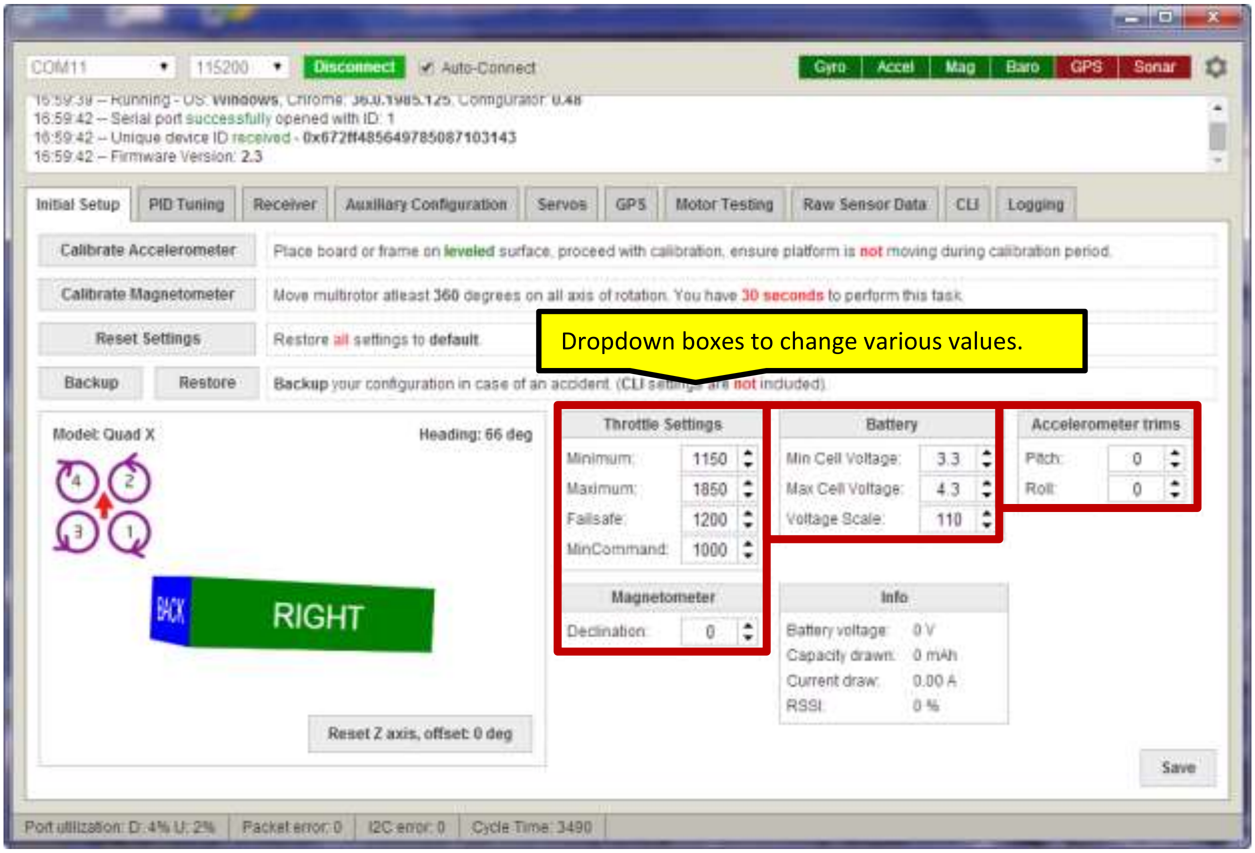

Accelerometer and Magnetometer (Compass) calibration buttons.
COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
16:59:42 -- Serial port successfully opened with ID: 1
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task.
Reset Settings
Restore all settings to default.
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included).
Model: Quad X
Heading: 66 deg
BACK
RIGHT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Accelerometer trims
Pitch: 0
Roll: 0
Magnetometer
Declination: 0
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3490

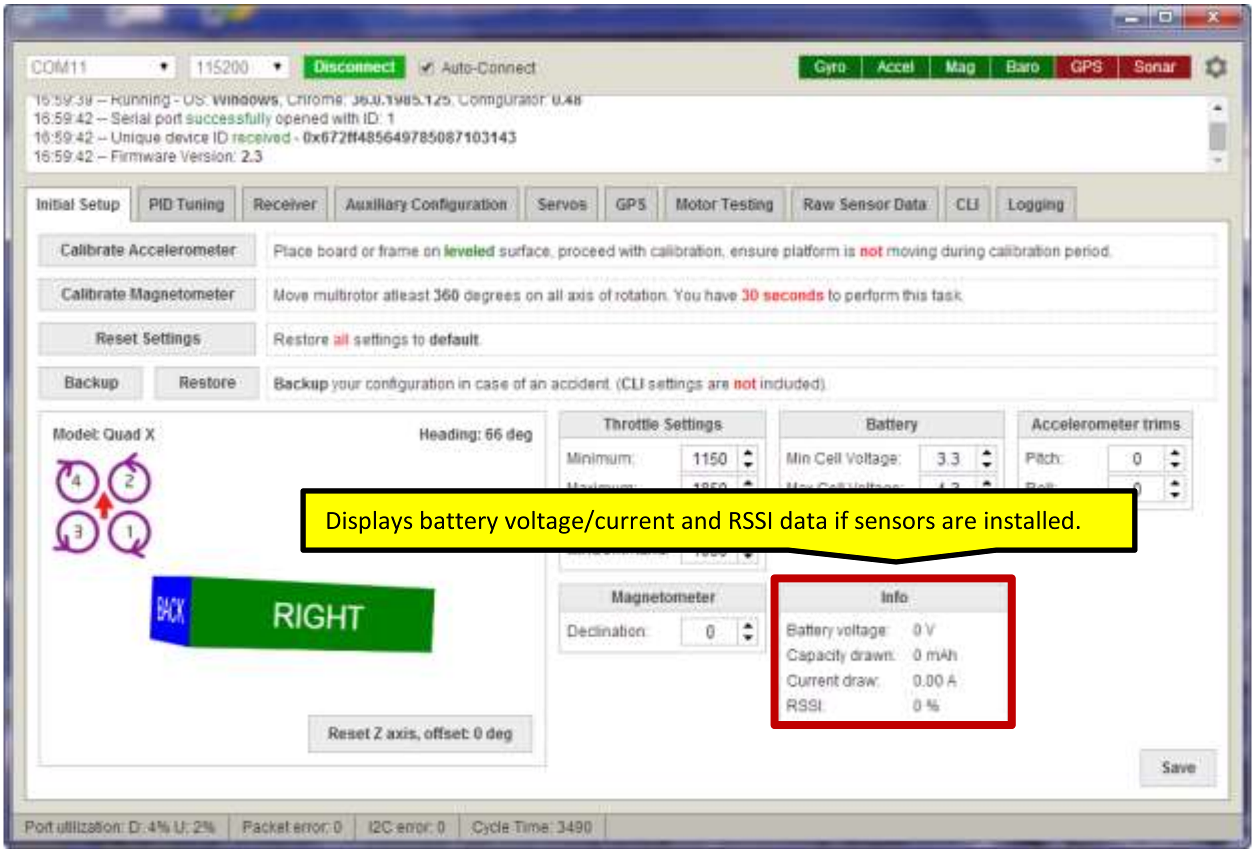

COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
16:59:42 -- Serial port successfully opened with ID: 1
16:59:42 -- Unique device ID received - 0x672ff485649785087103143
16:59:42 -- Firmware Version: 2.3
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Buttons to reset, backup or restore current settings.
ceed with calibration, ensure platform is not moving during calibration period.
of rotation. You have 30 seconds to perform this task.
Reset Settings
Restore all settings to default.
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included)
Model: Quad X
Heading: 66 deg
RIGHT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Magnetometer
Declination: 0
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Accelerometer trims
Pitch: 0
Roll: 0
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3490

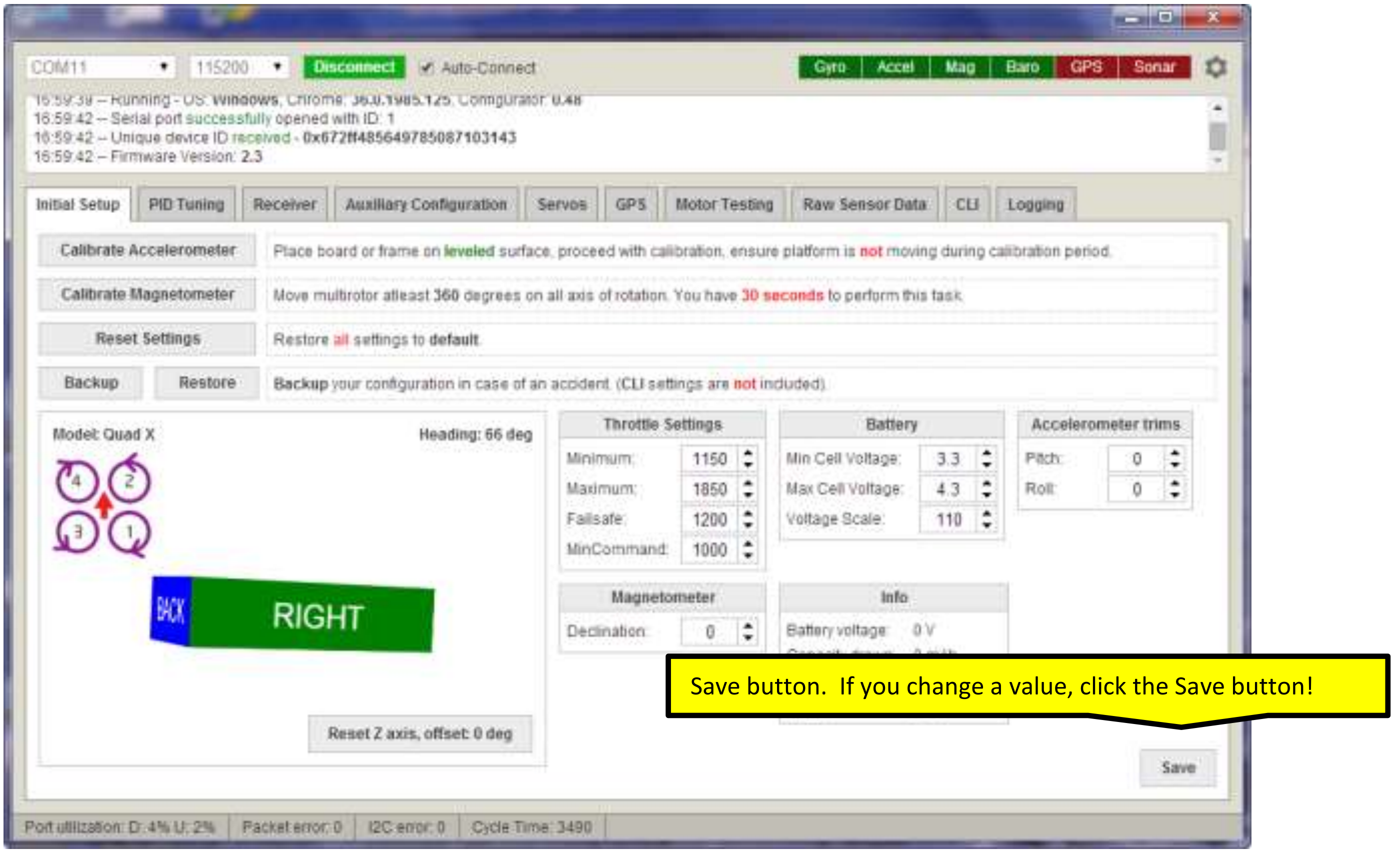


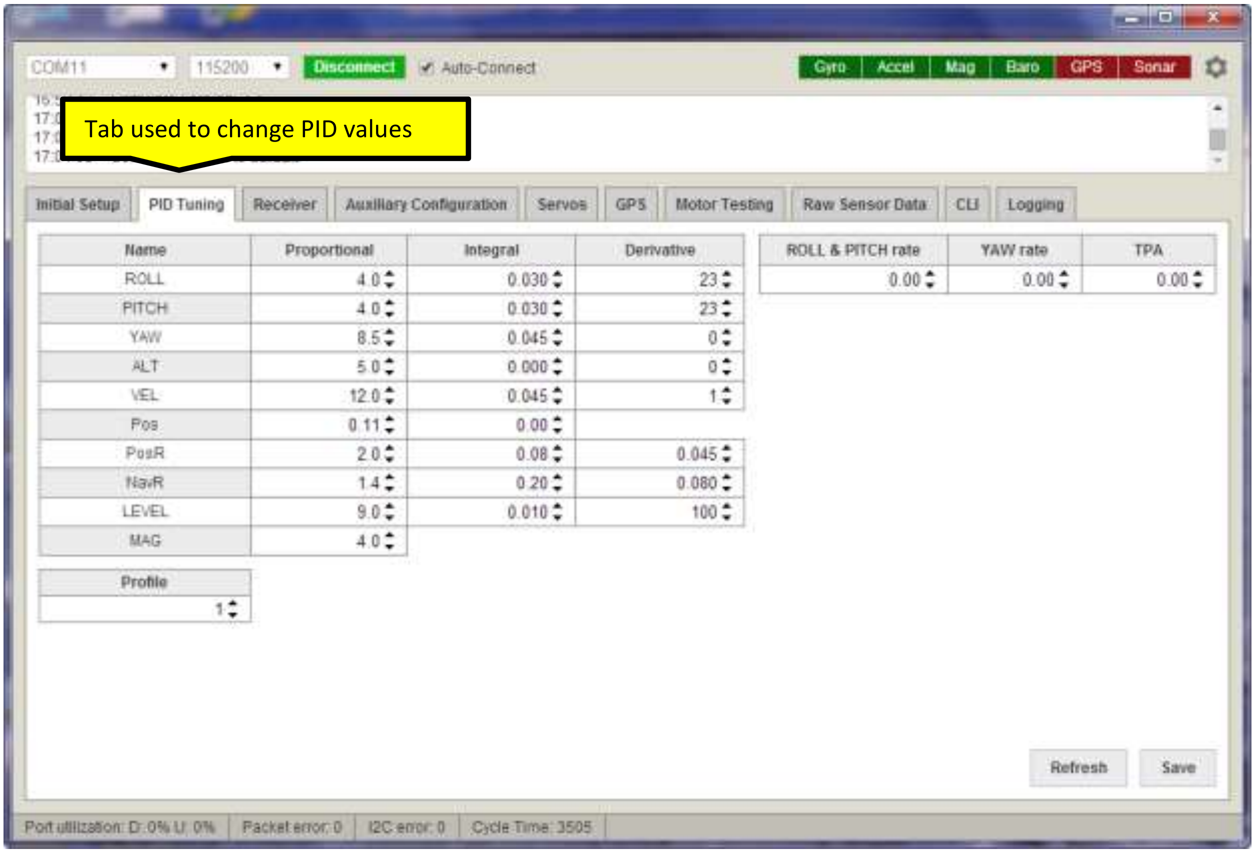
COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
16:59:42 -- Serial port successfully opened with ID: 1
16:59:42 -- Unique device ID received - 0x672ff485649785087103143
16:59:42 -- Firmware Version: 2.3
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task.
Area displays the multirotor type, magnetometer heading and orientation of Flip32+
Model: Quad X
Heading: 66 deg
BACK
RIGHT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Accelerometer trims
Pitch: 0
Roll: 0
Magnetometer
Declination: 0
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3490

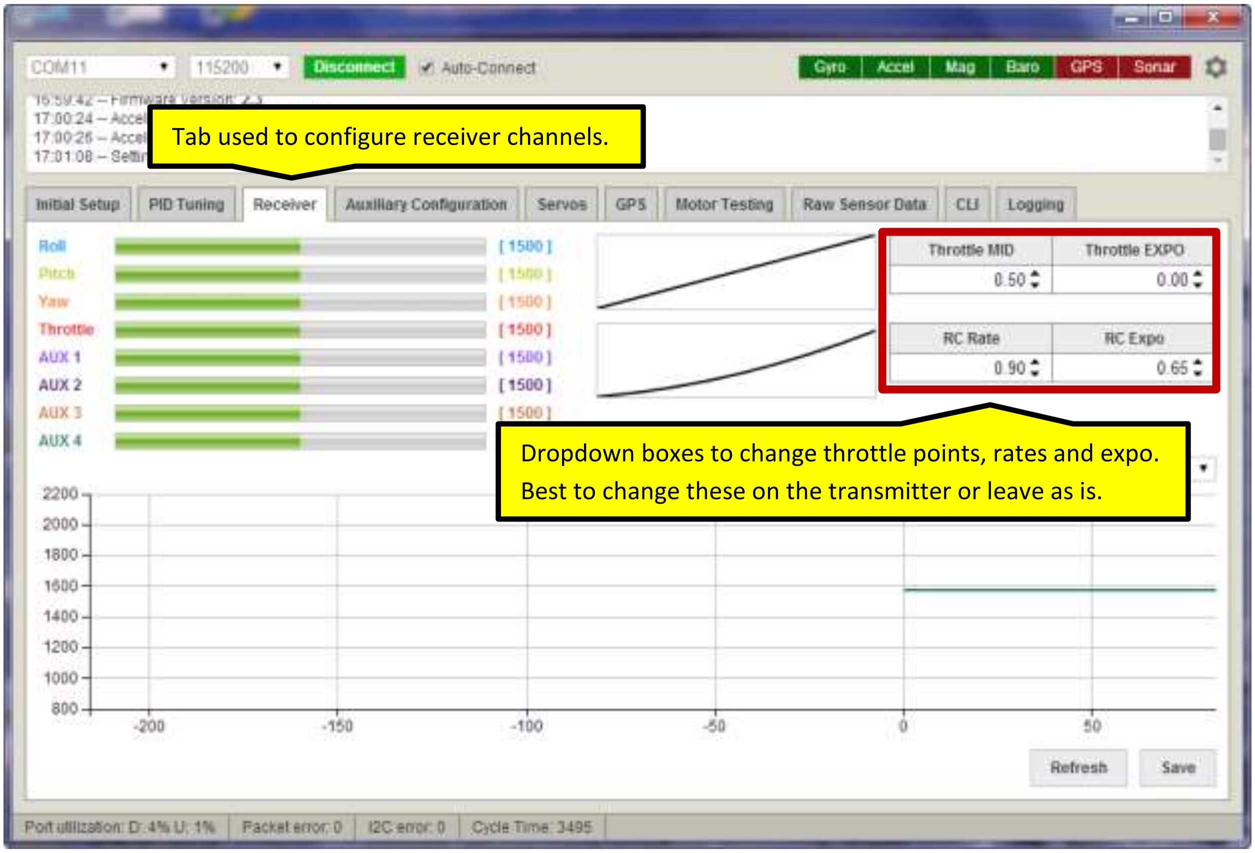

Button to reset the Z axis and offset.
Reset Z axis, offset: 0 deg

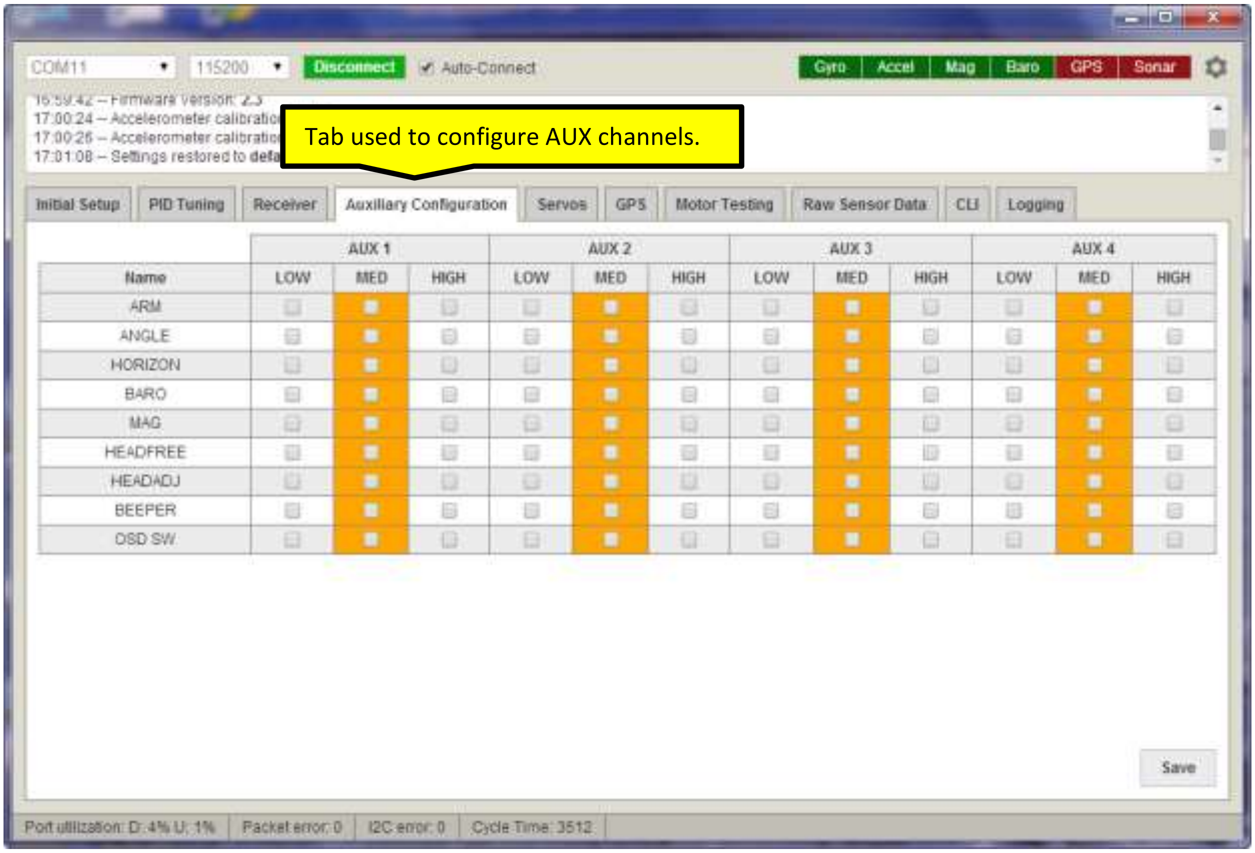

COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
16:59:42 -- Serial port successfully opened with ID: 1
16:59:42 -- Unique device ID received - 0x672ff485649785087103143
16:59:42 -- Firmware Version: 2.3
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task.
Reset Settings
Restore all settings to default
Dropdown boxes to change various values.
Backup
Restore
Model: Quad X
Heading: 66 deg
RIGHT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Magnetometer
Declination: 0
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Accelerometer trims
Pitch: 0
Roll: 0
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3490

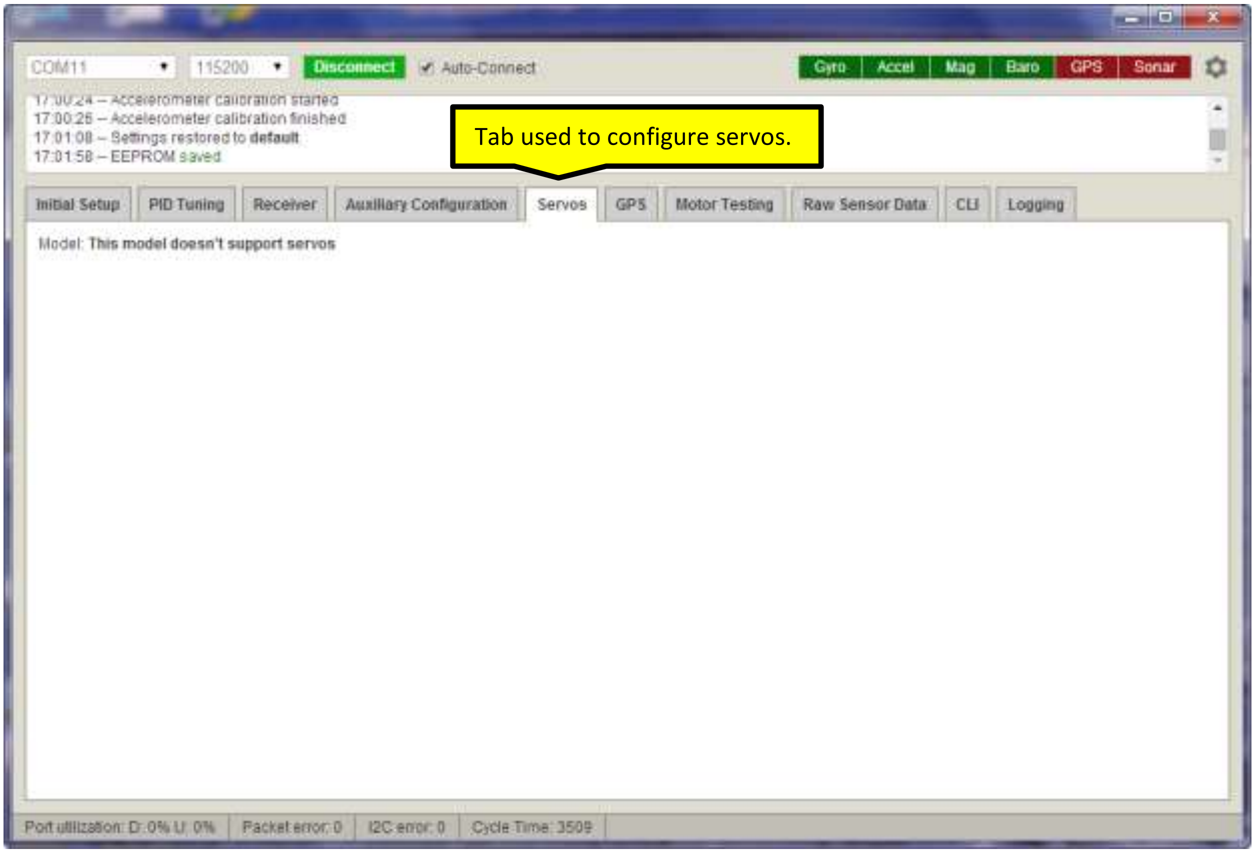

COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
16:59:42 -- Serial port successfully opened with ID: 1
16:59:42 -- Unique device ID received - 0x672ff485649785087103143
16:59:42 -- Firmware Version: 2.3
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task
Reset Settings
Restore all settings to default
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included)
Model: Quad X
Heading: 66 deg
Throttle Settings
Minimum:
1150
Battery
Min Cell Voltage:
3.3
Accelerometer trims
Pitch:
0
Displays battery voltage/current and RSSI data if sensors are installed.
BACK
RIGHT
Magnetometer
Declination:
0
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Reset Z axis, offset: 0 deg
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3490

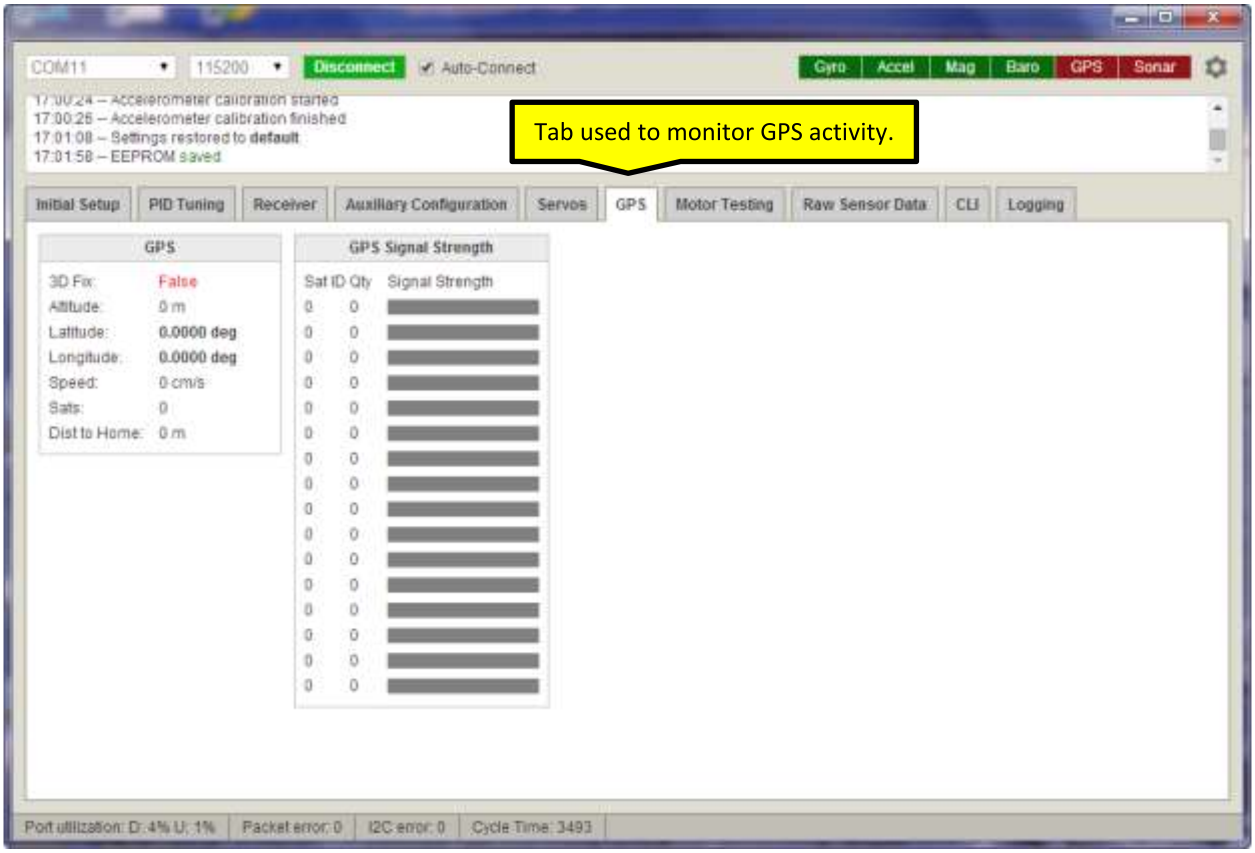

COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
16:59:42 -- Serial port successfully opened with ID: 1
16:59:42 -- Unique device ID received - 0x672ff485649785087103143
16:59:42 -- Firmware Version: 2.3
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task.
Reset Settings
Restore all settings to default.
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included).
Model: Quad X
Heading: 66 deg
BACK
RIGHT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Accelerometer trims
Pitch: 0
Roll: 0
Magnetometer
Declination: 0
Info
Battery voltage: 0 V
Save button. If you change a value, click the Save button!
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3490

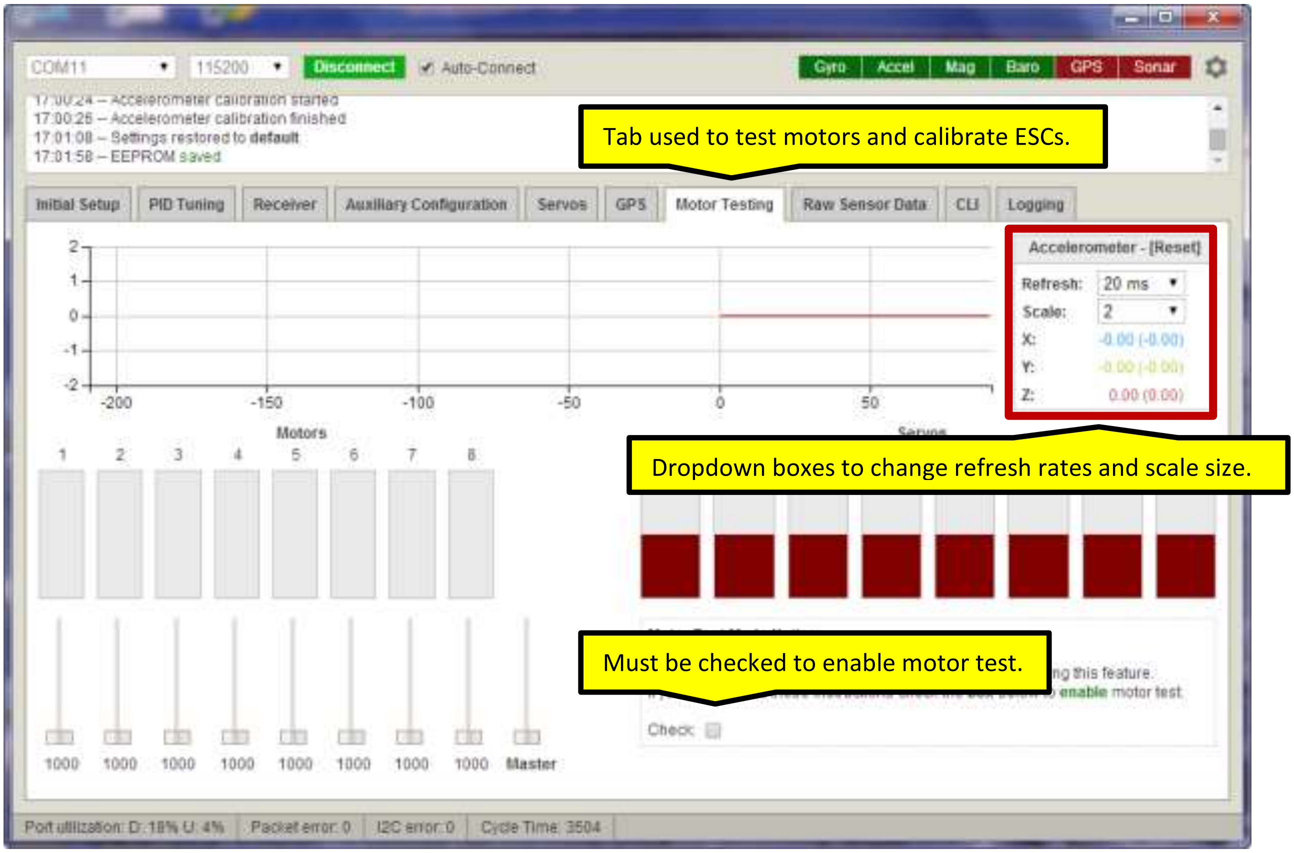

COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
Tab used to change PID values
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Name
Proportional
Integral
Derivative
ROLL 4.0 0.030 23
PITCH 4.0 0.030 23
YAW 8.5 0.045 0
ALT 5.0 0.000 0
VEL 12.0 0.045 1
Pos 0.11 0.00
PosR 2.0 0.08 0.045
NavR 1.4 0.20 0.080
LEVEL 9.0 0.010 100
MAG 4.0
ROLL & PITCH rate
YAW rate
TPA
0.00
0.00
0.00
Profile
1
Refresh
Save
Port utilization: D: 0% U: 0%
Packet error: 0
I2C error: 0
Cycle Time: 3505


COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
Tab used to configure receiver channels.
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Roll
Pitch
Yaw
Throttle
AUX 1
AUX 2
AUX 3
AUX 4
Throttle MID
Throttle EXPO
0.50
0.00
RC Rate
RC Expo
0.90
0.65
Dropdown boxes to change throttle points, rates and expo.
Best to change these on the transmitter or leave as is.
Refresh
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3495

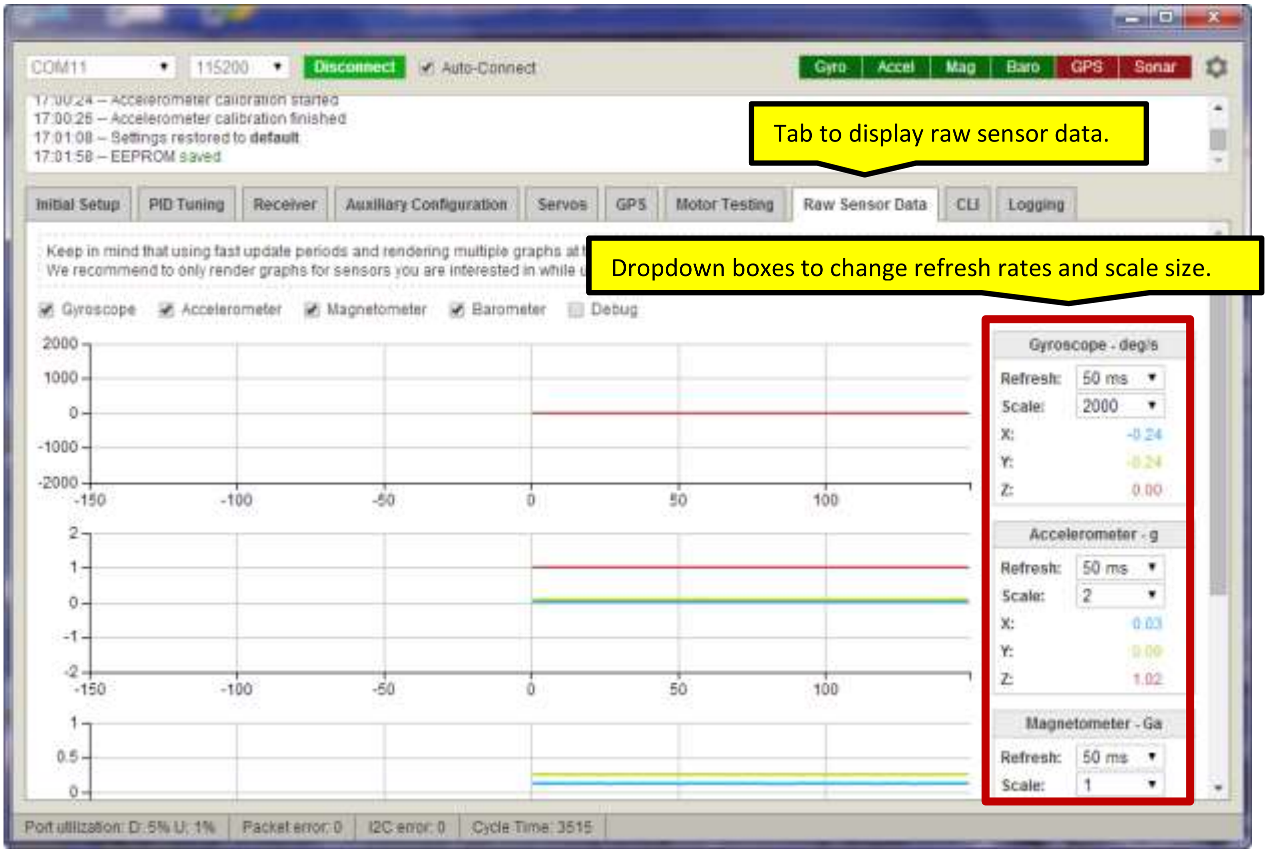

COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
17:00:24 – Accelerometer calibratio
17:00:26 – Accelerometer calibratio
17:01:08 – Settings restored to defa
Tab used to configure AUX channels.
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
AUX 1
AUX 2
AUX 3
AUX 4
Name
LOW
MED
HIGH
ARM
ANGLE
HORIZON
BARO
MAG
HEADFREE
HEADADJ
BEEPER
OSD SW
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3512

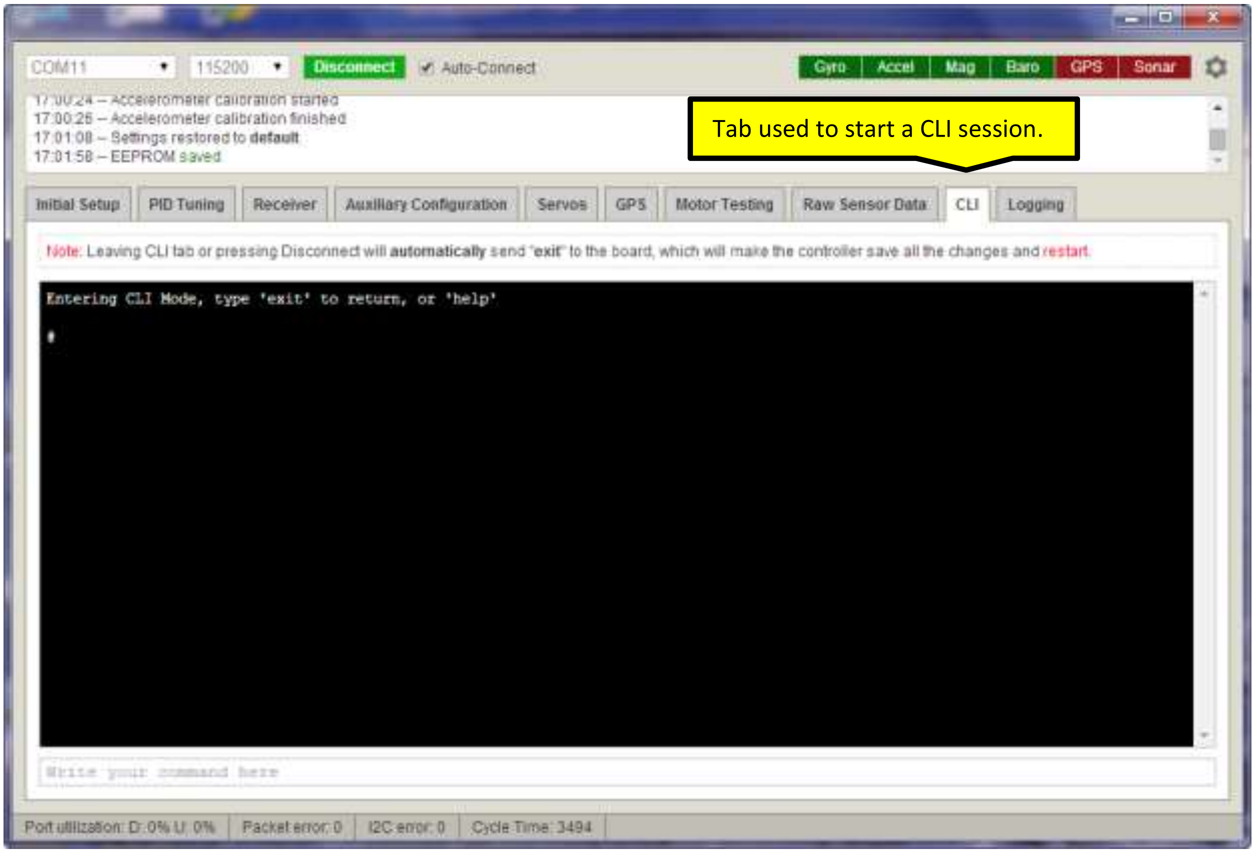

COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
17:00:24 – Accelerometer calibration started
17:00:26 – Accelerometer calibration finished
17:01:08 – Settings restored to default
17:01:58 – EEPROM saved
Tab used to configure servos.
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Model: This model doesn't support servos
Port utilization: D: 0% U: 0%
Packet error: 0
I2C error: 0
Cycle Time: 3509

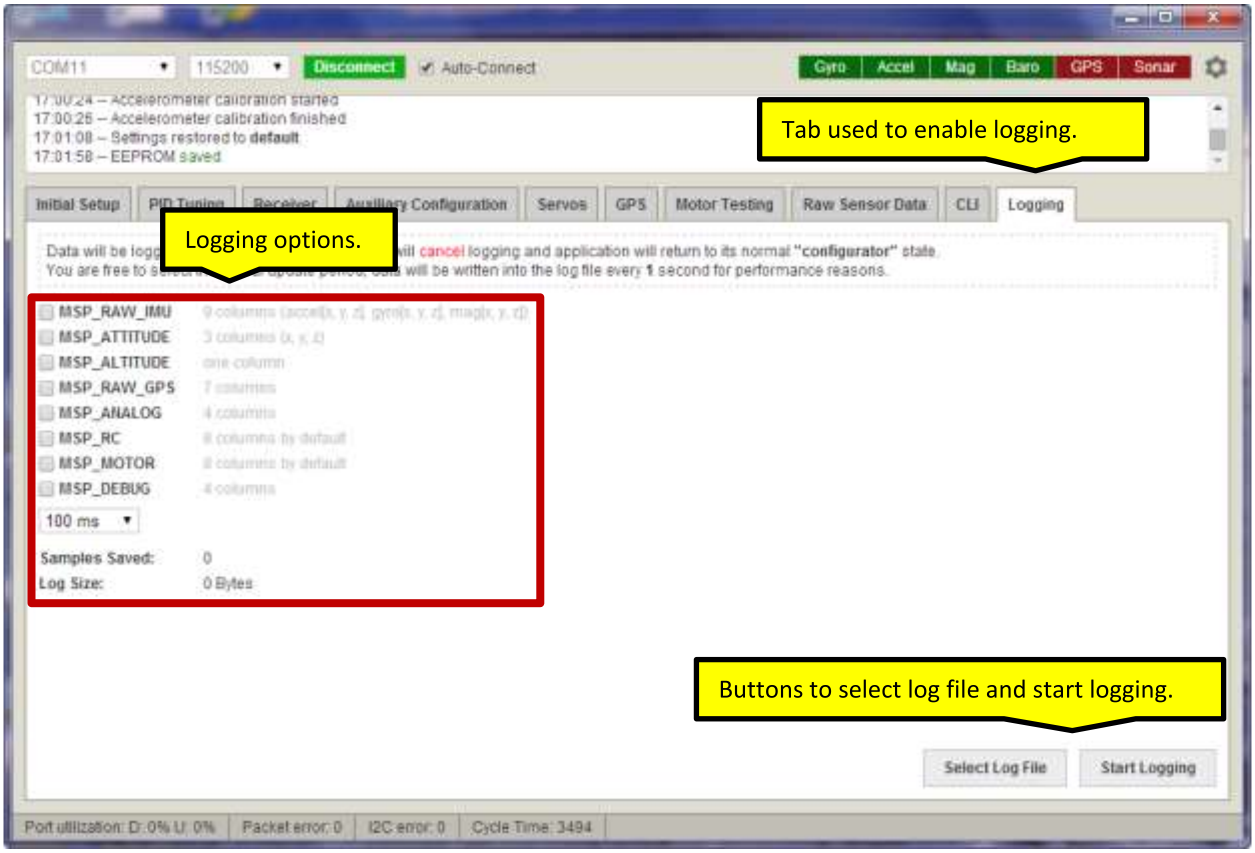

COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
17:00:24 – Accelerometer calibration started
17:00:26 – Accelerometer calibration finished
17:01:08 – Settings restored to default
17:01:58 – EEPROM saved
Tab used to monitor GPS activity.
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
GPS
3D Fix: False
Altitude: 0 m
Latitude: 0.0000 deg
Longitude: 0.0000 deg
Speed: 0 cm/s
Sats: 0
Dist to Home: 0 m
GPS Signal Strength
Sat ID Qty Signal Strength
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3493



Tab used to test motors and calibrate ESCs.
Dropdown boxes to change refresh rates and scale size.
Must be checked to enable motor test.
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Accelerometer - [Reset]
Refresh: 20 ms
Scale: 2
Motors
Servos
Master
Check:


Tab to display raw sensor data.
Dropdown boxes to change refresh rates and scale size.
COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
17:00:26 – Accelerometer calibration finished
17:01:08 – Settings restored to default
17:01:58 – EEPROM saved
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Gyroscope
Accelerometer
Magnetometer
Barometer
Debug
Gyroscope - deg/s
Refresh: 50 ms
Scale: 2000
Accelerometer - g
Refresh: 50 ms
Scale: 2
Magnetometer - Ga
Refresh: 50 ms
Scale: 1
Port utilization: D: 5% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3515


COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
17:00:26 – Accelerometer calibration finished
17:01:08 – Settings restored to default
17:01:58 – EEPROM saved
Tab used to start a CLI session.
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Note: Leaving CLI tab or pressing Disconnect will automatically send "exit" to the board, which will make the controller save all the changes and restart.
Entering CLI Mode, type 'exit' to return, or 'help'
#
Write your command here
Port utilization: D: 0% U: 0%
Packet error: 0
I2C error: 0
Cycle Time: 3494


COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
17:00:26 – Accelerometer calibration finished
17:01:08 – Settings restored to default
17:01:58 – EEPROM saved
Tab used to enable logging.
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Logging options.
MSP_RAW_IMU
MSP_ATTITUDE
MSP_ALTITUDE
MSP_RAW_GPS
MSP_ANALOG
MSP_RC
MSP_MOTOR
MSP_DEBUG
100 ms
Samples Saved: 0
Log Size: 0 Bytes
Buttons to select log file and start logging.
Select Log File
Start Logging
Port utilization: D: 0% U: 0%
Packet error: 0
I2C error: 0
Cycle Time: 3494

CONNECTING THE FLIP32+ TO YOUR PC OR LAPTOP VIA A USB TO MICRO USB CABLE:

This is the method I prefer so that I do not short out the USB connector on the Flip32+:

1. Connect the USB to micro USB cable to the Flip32+
2. Connect the USB to micro USB cable to the pc or laptop

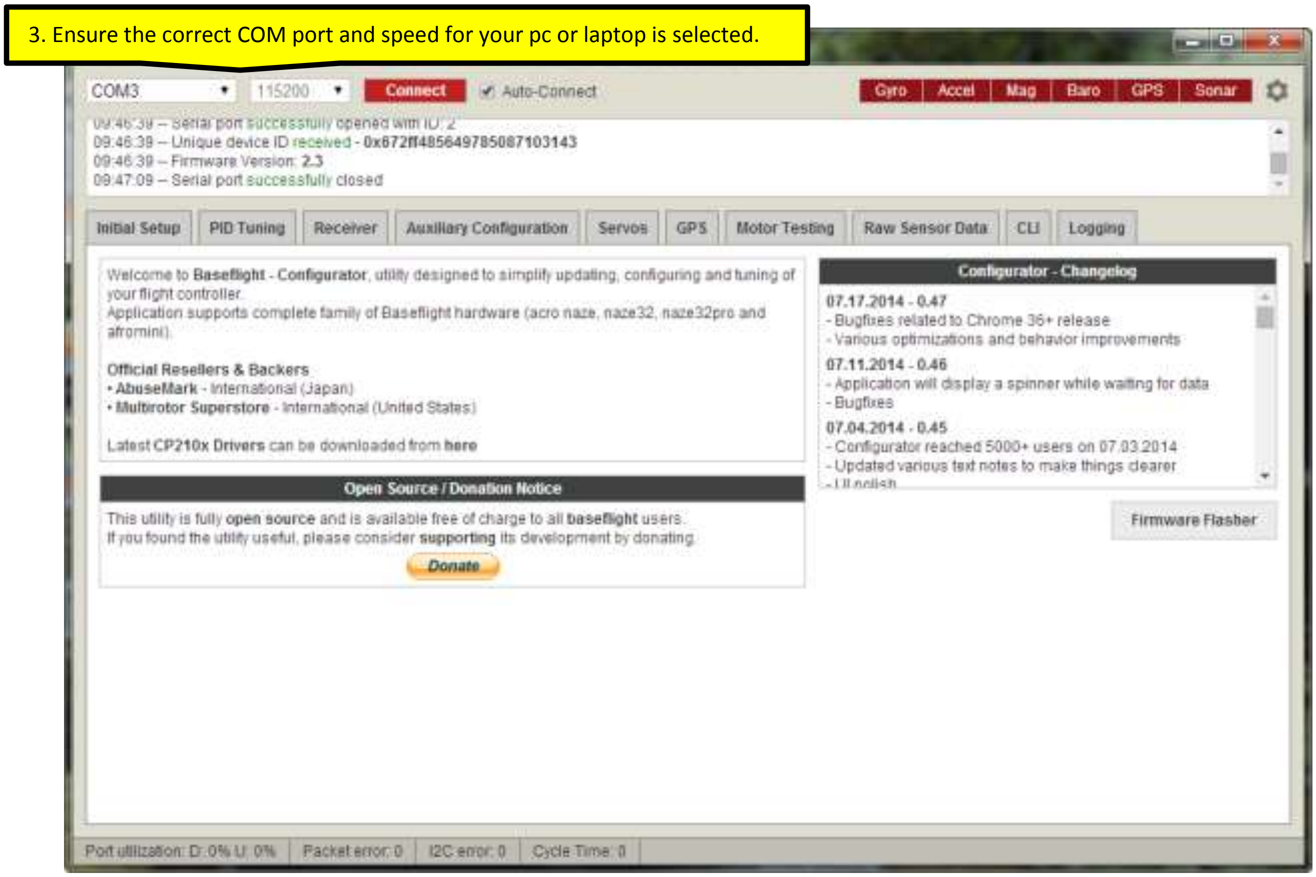
DISCONNECTING THE FLIP32+ FROM YOUR PC OR LAPTOP:

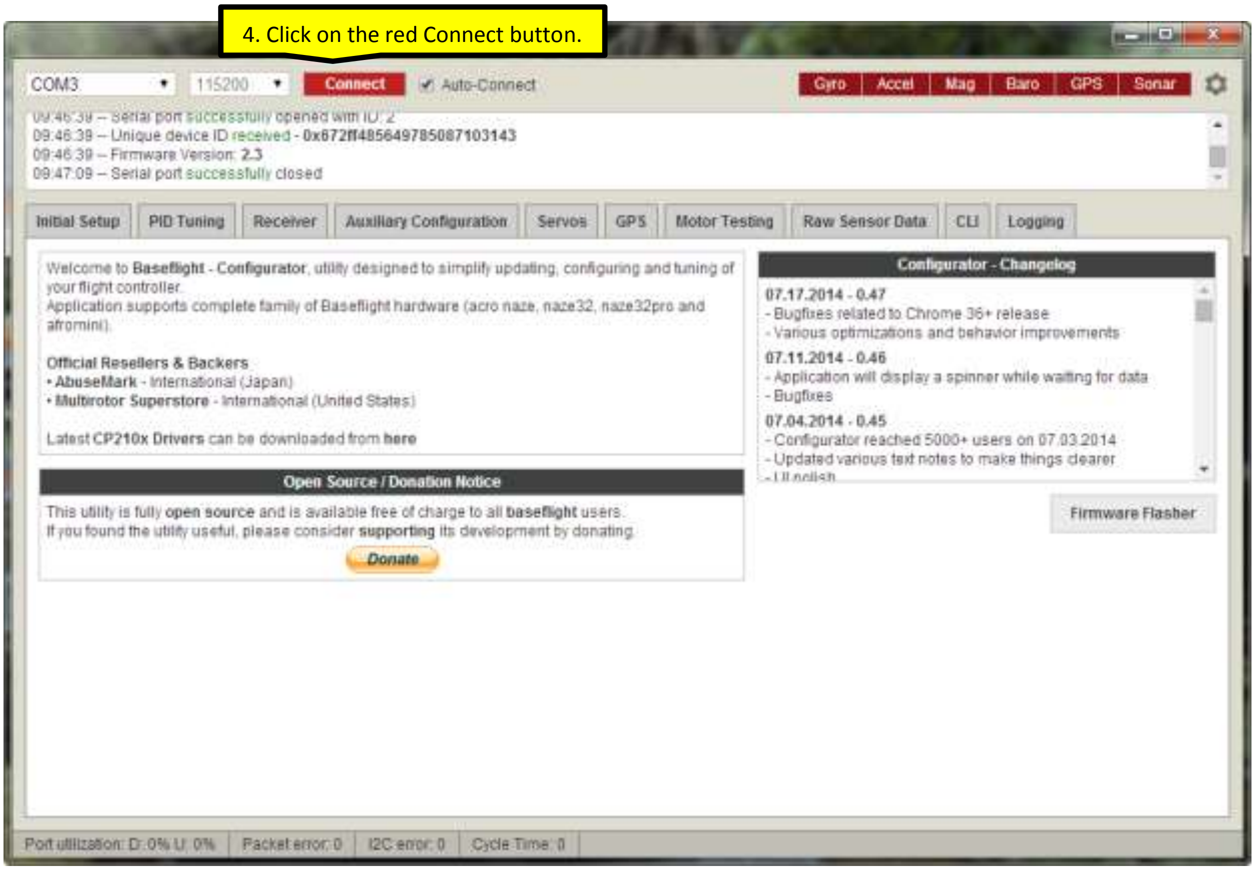
This is the method I prefer so that I do not short out the USB connector on the Flip32+:

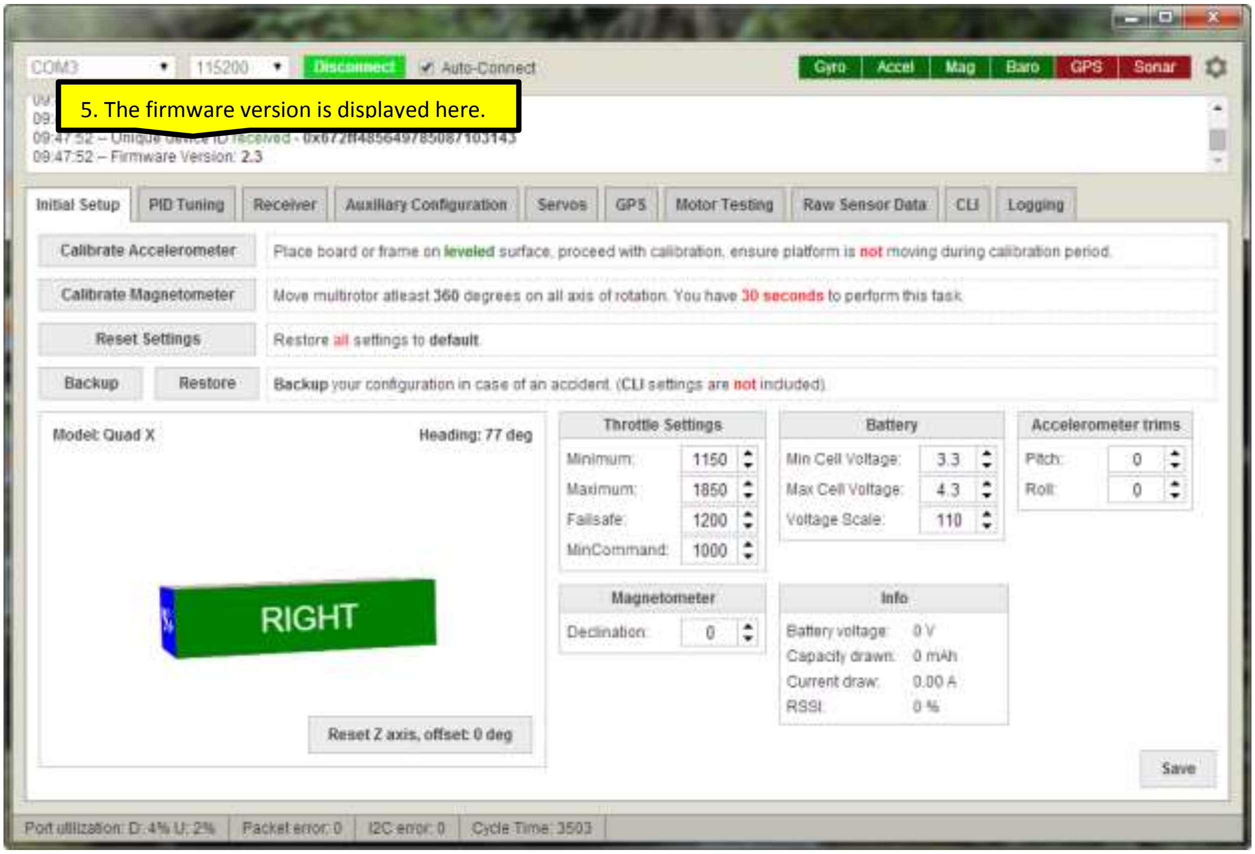
1. Disconnect the USB to micro USB cable from the pc or laptop
2. Disconnect the USB to micro USB cable from the Flip32+

CHECKING THE FIRMWARE VERSION:

1. Connect the Flip32+ to your pc or laptop.
2. Start the BaseFlight Configurator.

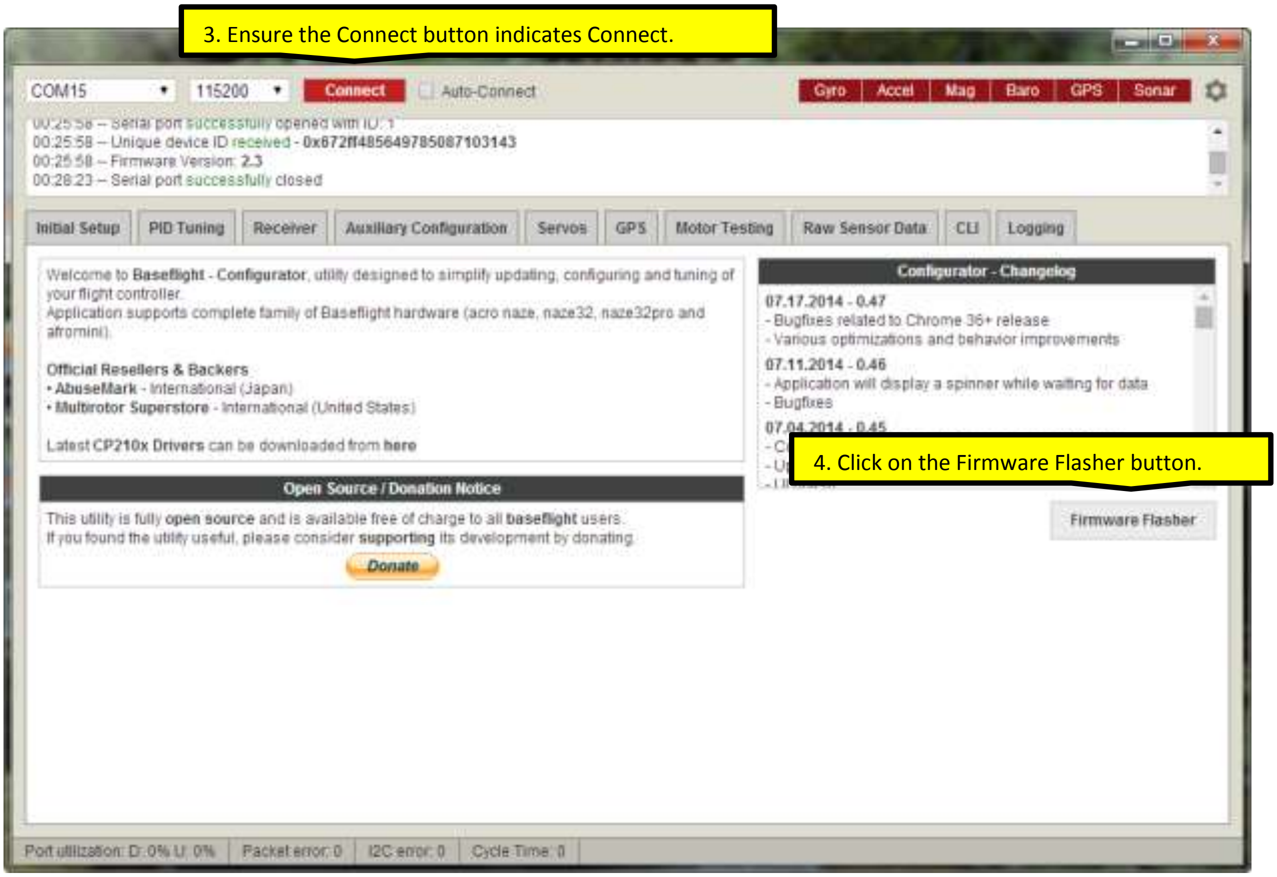


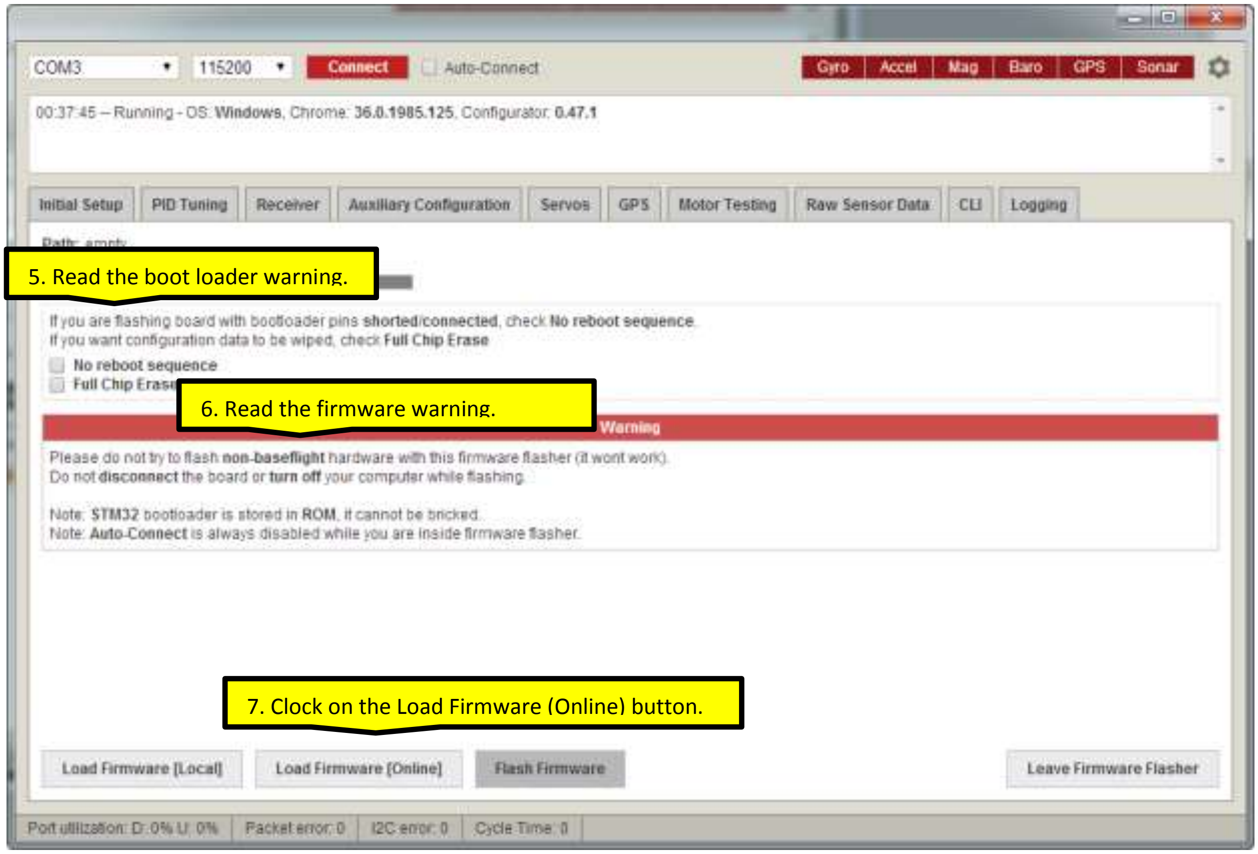

4. Click on the red Connect button.
COM3
115200
Connect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
09:46:39 -- Unique device ID received - 0x672ff485649785087103143
09:46:39 -- Firmware Version: 2.3
09:47:09 -- Serial port successfully closed
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Welcome to Baseflight - Configurator, utility designed to simplify updating, configuring and tuning of your flight controller.
Application supports complete family of Baseflight hardware (acro naze, naze32, naze32pro and afromini).
Official Resellers & Backers
• AbuseMark - International (Japan)
• Multirotor Superstore - International (United States)
Latest CP210x Drivers can be downloaded from here
Open Source / Donation Notice
This utility is fully open source and is available free of charge to all baseflight users.
If you found the utility useful, please consider supporting its development by donating.
Donate
Configurator - Changelog
07.17.2014 - 0.47
- Bugfixes related to Chrome 36+ release
- Various optimizations and behavior improvements
07.11.2014 - 0.46
- Application will display a spinner while waiting for data
- Bugfixes
07.04.2014 - 0.45
- Configurator reached 5000+ users on 07.03.2014
- Updated various text notes to make things clearer
Firmware Flasher
Port utilization: D: 0% U: 0%
Packet error: 0
I2C error: 0
Cycle Time: 0

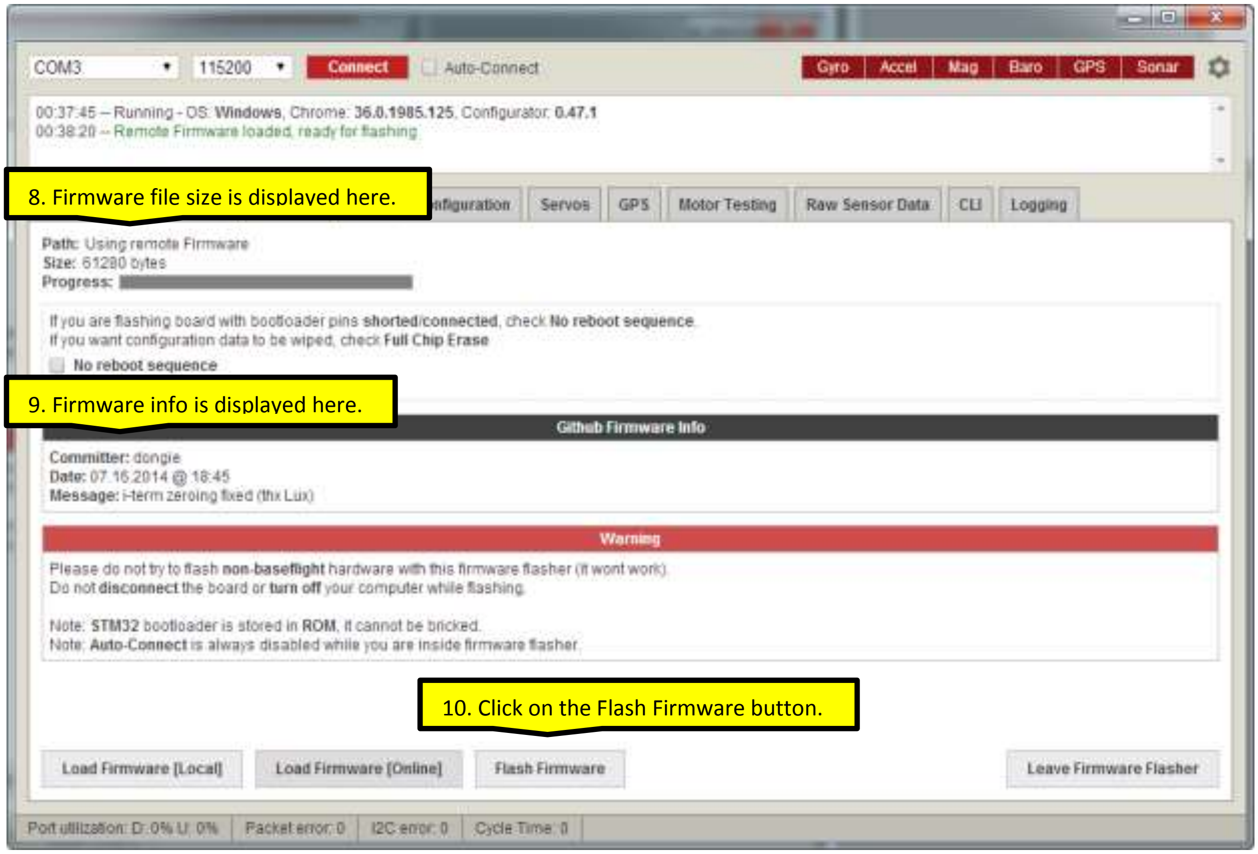

5. The firmware version is displayed here.
09:47:52 – Firmware Version: 2.3
Gyro
Accel
Mag
Baro
GPS
Sonar
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task.
Reset Settings
Restore all settings to default
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included).
Model: Quad X
Heading: 77 deg
RIGHT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Accelerometer trims
Pitch: 0
Roll: 0
Magnetometer
Declination: 0
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3503

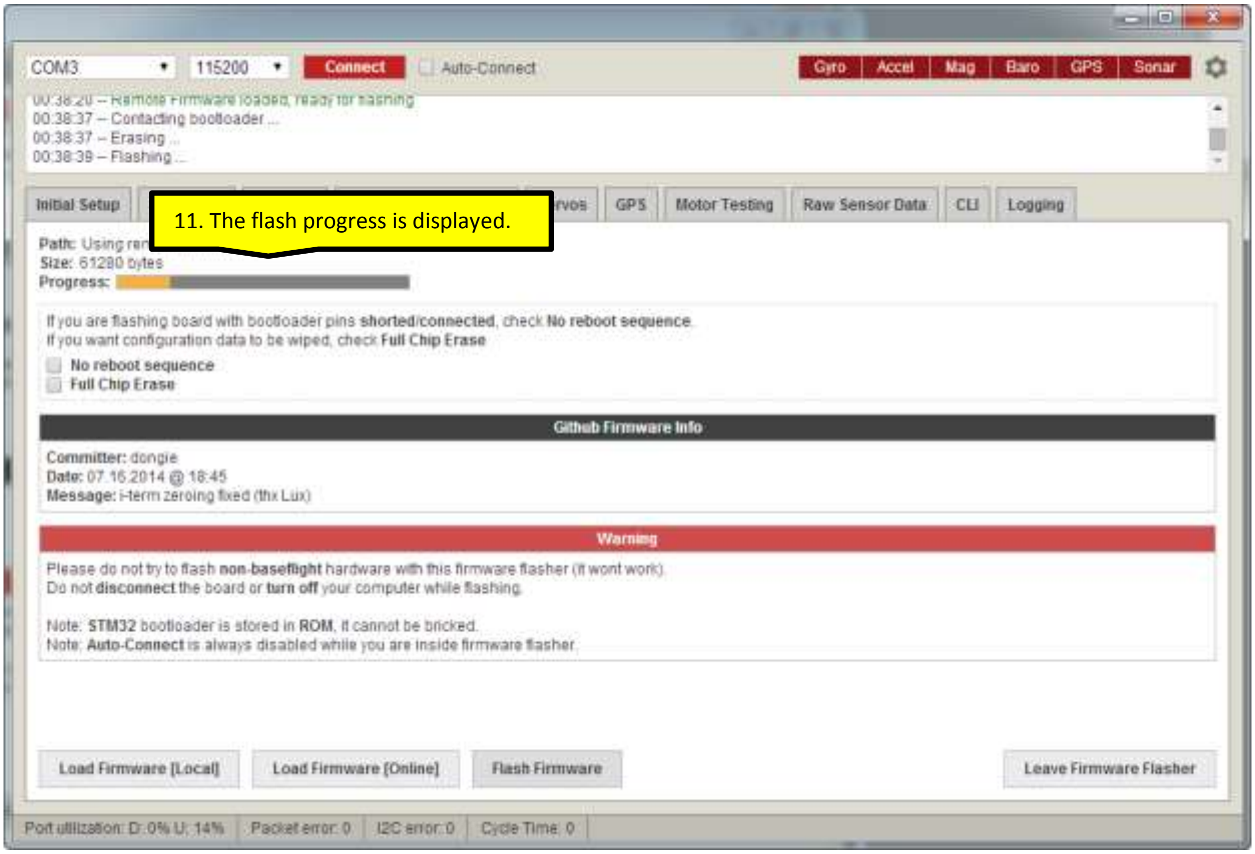
UPDATING THE FIRMWARE:

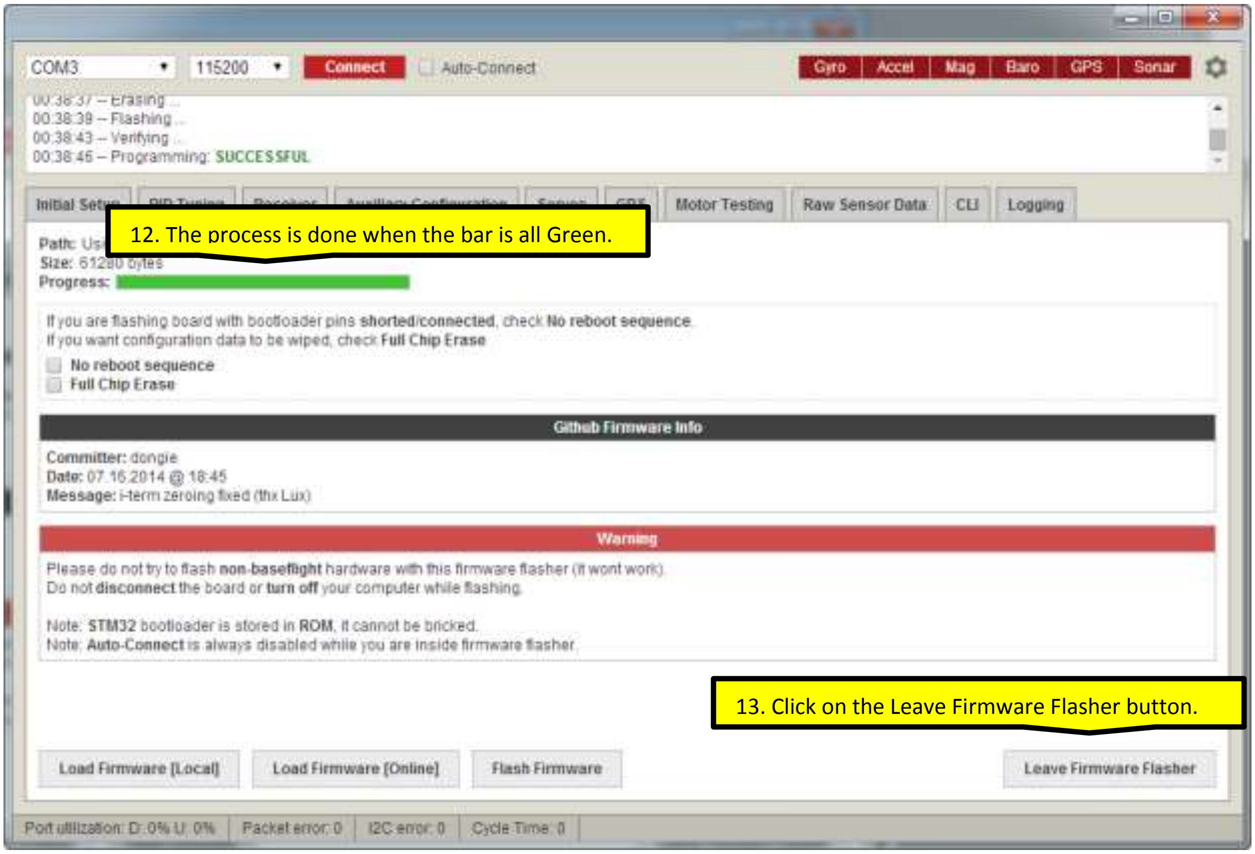
1. Connect the Flip32+ to your pc or laptop.
2. Start the BaseFlight Configurator.




COM3
115200
Connect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
00:37:45 – Running - OS: Windows, Chrome: 36.0.1985.125, Configurator: 0.47.1
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
5. Read the boot loader warning.
If you are flashing board with bootloader pins shorted/connected, check No reboot sequence
If you want configuration data to be wiped, check Full Chip Erase
No reboot sequence
6. Read the firmware warning.
Warning
Please do not try to flash non-baseflight hardware with this firmware flasher (it wont work).
Do not disconnect the board or turn off your computer while flashing.
Note: STM32 bootloader is stored in ROM, it cannot be bricked.
Note: Auto-Connect is always disabled while you are inside firmware flasher.
7. Clock on the Load Firmware (Online) button.
Load Firmware [Local]
Load Firmware [Online]
Flash Firmware
Leave Firmware Flasher
Port utilization: D: 0% U: 0%
Packet error: 0
I2C error: 0
Cycle Time: 0


COM3
115200
Connect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
00:37:45 -- Running - OS: Windows, Chrome: 36.0.1985.125, Configurator: 0.47.1
00:38:20 -- Remote Firmware loaded, ready for flashing
8. Firmware file size is displayed here.
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Path: Using remote Firmware
Size: 61280 bytes
Progress:
If you are flashing board with bootloader pins shorted/connected, check No reboot sequence
If you want configuration data to be wiped, check Full Chip Erase
No reboot sequence
9. Firmware info is displayed here.
Github Firmware Info
Committer: dongie
Date: 07.16.2014 @ 18:45
Message: i-term zeroing fixed (thx Lux)
Warning
Please do not try to flash non-baseflight hardware with this firmware flasher (it wont work).
Do not disconnect the board or turn off your computer while flashing.
Note: STM32 bootloader is stored in ROM, it cannot be bricked.
Note: Auto-Connect is always disabled while you are inside firmware flasher.
10. Click on the Flash Firmware button.
Load Firmware [Local]
Load Firmware [Online]
Flash Firmware
Leave Firmware Flasher
Port utilization: D: 0% U: 0%
Packet error: 0
I2C error: 0
Cycle Time: 0


COM3
115200
Connect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
00:38:37 – Contacting bootloader ...
00:38:37 – Erasing ...
00:38:39 – Flashing ...
Initial Setup
rvos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
11. The flash progress is displayed.
Size: 61280 bytes
Progress:
If you are flashing board with bootloader pins shorted/connected, check No reboot sequence.
If you want configuration data to be wiped, check Full Chip Erase
No reboot sequence
Full Chip Erase
Github Firmware Info
Committer: dongie
Date: 07.16.2014 @ 18:45
Message: i-term zeroing fixed (thx Lux)
Warning
Please do not try to flash non-baseflight hardware with this firmware flasher (it wont work).
Do not disconnect the board or turn off your computer while flashing.
Note: STM32 bootloader is stored in ROM, it cannot be bricked.
Note: Auto-Connect is always disabled while you are inside firmware flasher.
Load Firmware [Local]
Load Firmware [Online]
Flash Firmware
Leave Firmware Flasher
Port utilization: D: 0% U: 14%
Packet error: 0
I2C error: 0
Cycle Time: 0


COM3
115200
Connect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
00:38:39 – Flashing ...
00:38:43 – Verifying ...
00:38:45 – Programming: SUCCESSFUL
Motor Testing
Raw Sensor Data
CLI
Logging
12. The process is done when the bar is all Green.
Progress:
If you are flashing board with bootloader pins shorted/connected, check No reboot sequence.
If you want configuration data to be wiped, check Full Chip Erase
No reboot sequence
Full Chip Erase
Github Firmware Info
Committer: dongie
Date: 07.16.2014 @ 18:45
Message: i-term zeroing fixed (thx Lux)
Warning
Please do not try to flash non-baseflight hardware with this firmware flasher (it wont work).
Do not disconnect the board or turn off your computer while flashing.
Note: STM32 bootloader is stored in ROM, it cannot be bricked.
Note: Auto-Connect is always disabled while you are inside firmware flasher.
13. Click on the Leave Firmware Flasher button.
Load Firmware [Local]
Load Firmware [Online]
Flash Firmware
Leave Firmware Flasher
Port utilization: D: 0% U: 0%
Packet error: 0
I2C error: 0
Cycle Time: 0

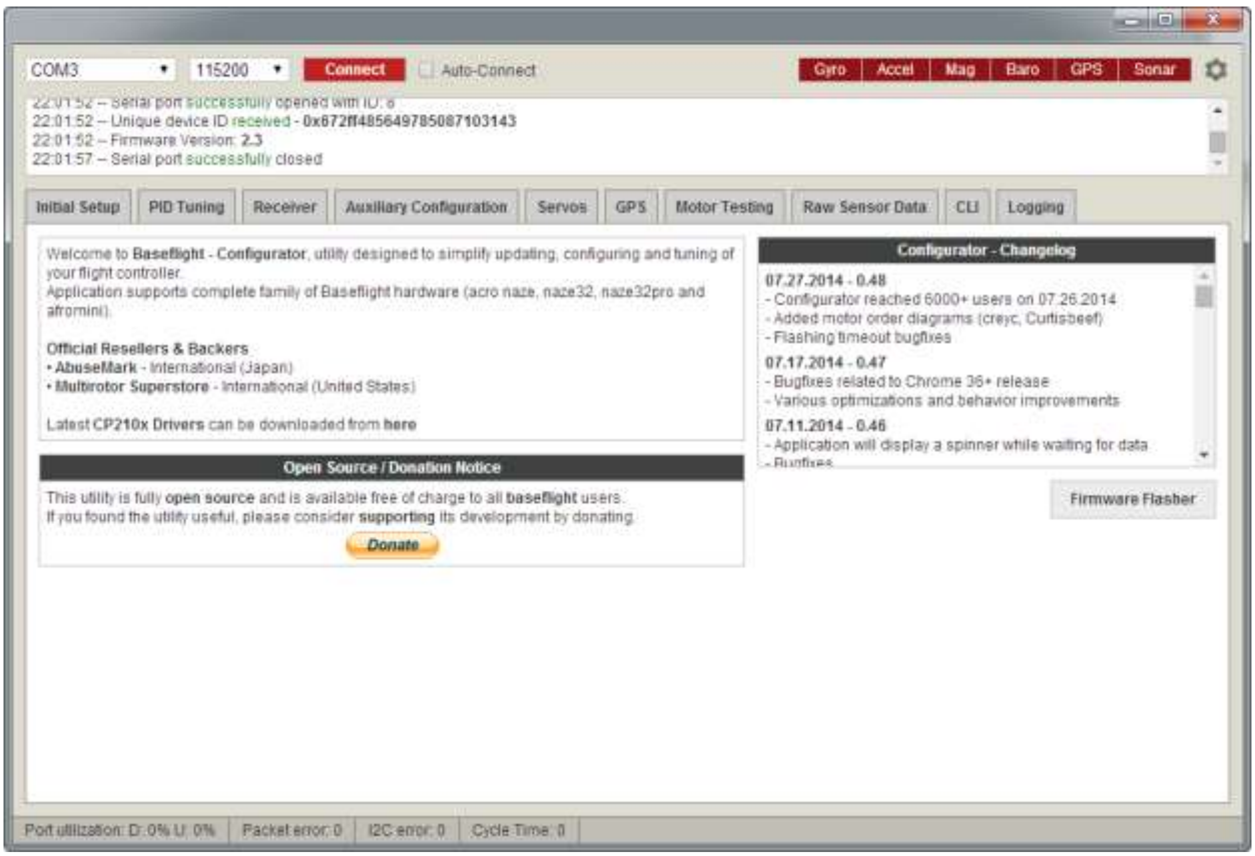
TRANSMITTER STICK CALIBRATION:

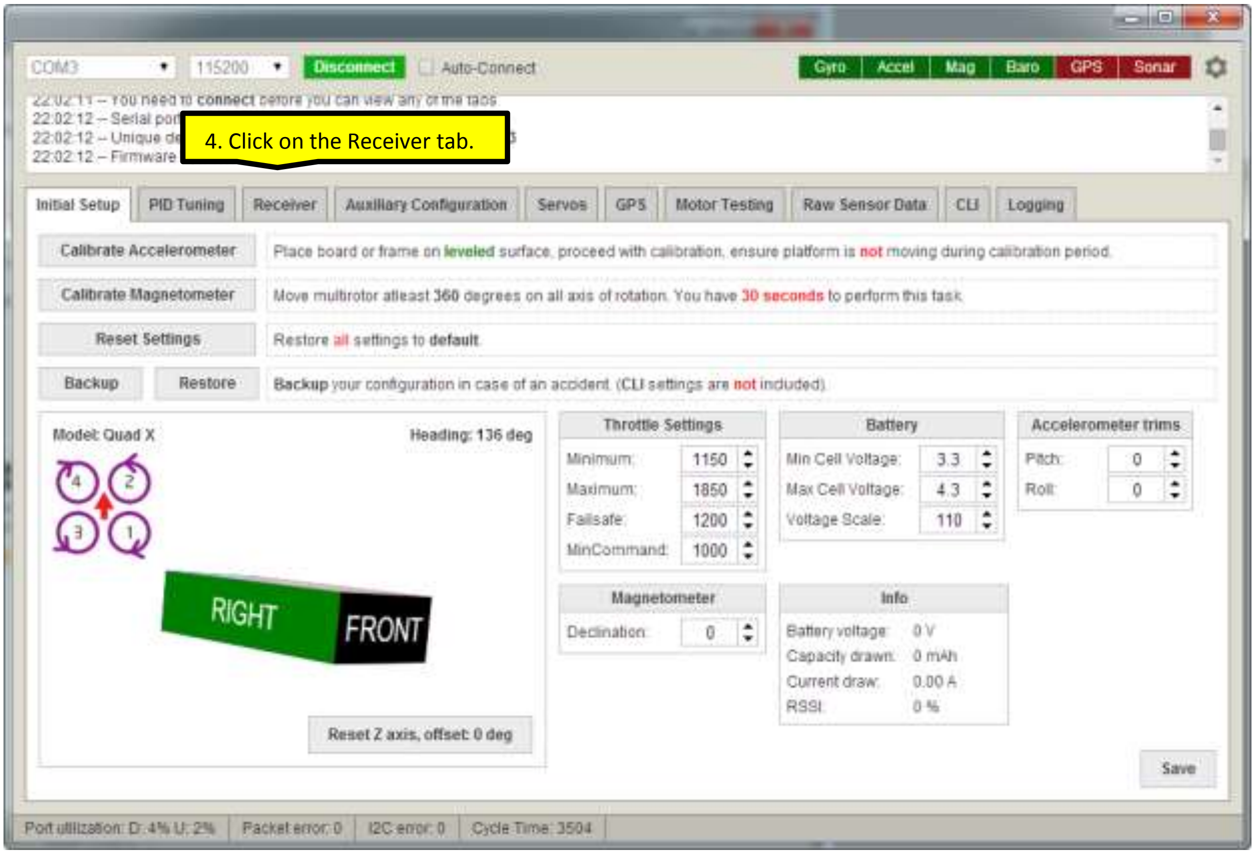
This calibration process performs two very important tasks:

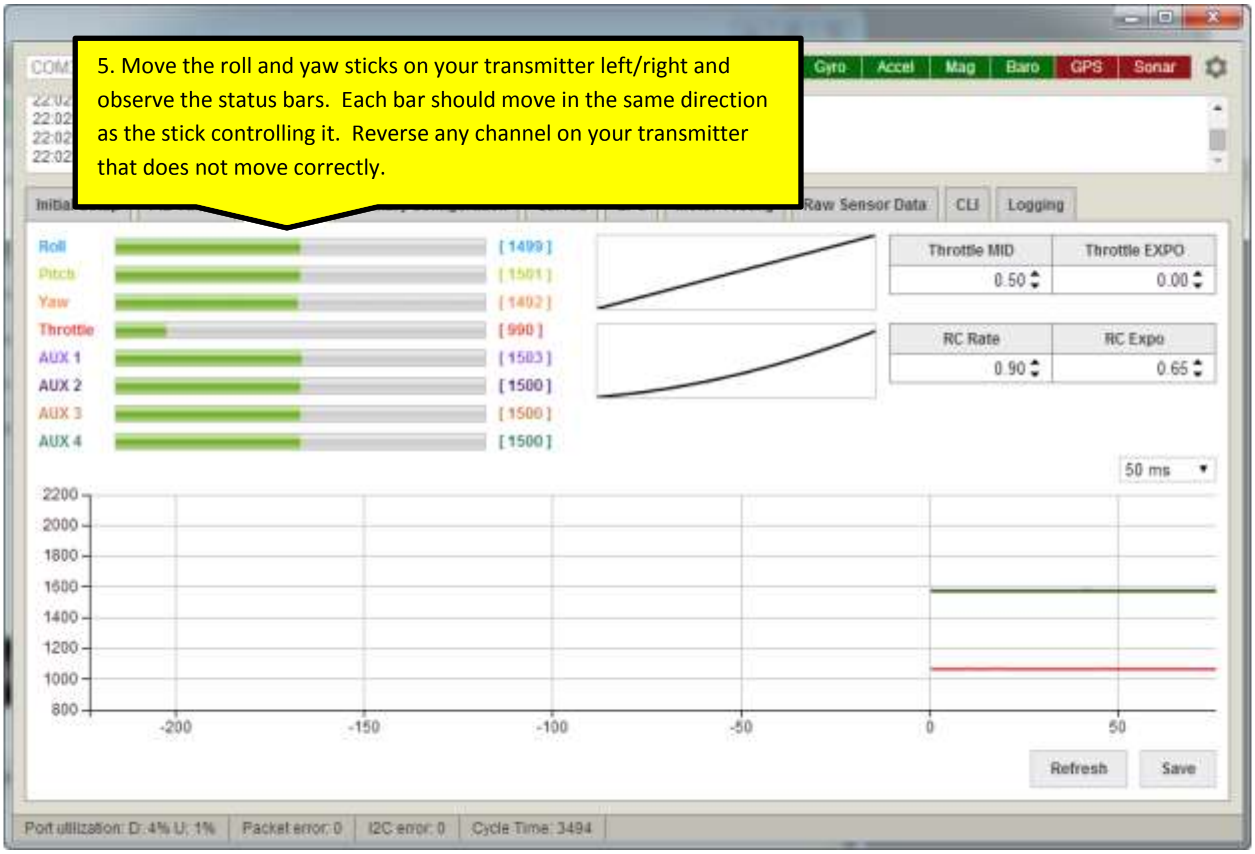
- Provides the Flip32+ the PWM pulse ranges generated by each channel and stick on your transmitter.
- Provides a means to verify the movement of your channels, in case one of them needs to be reversed.

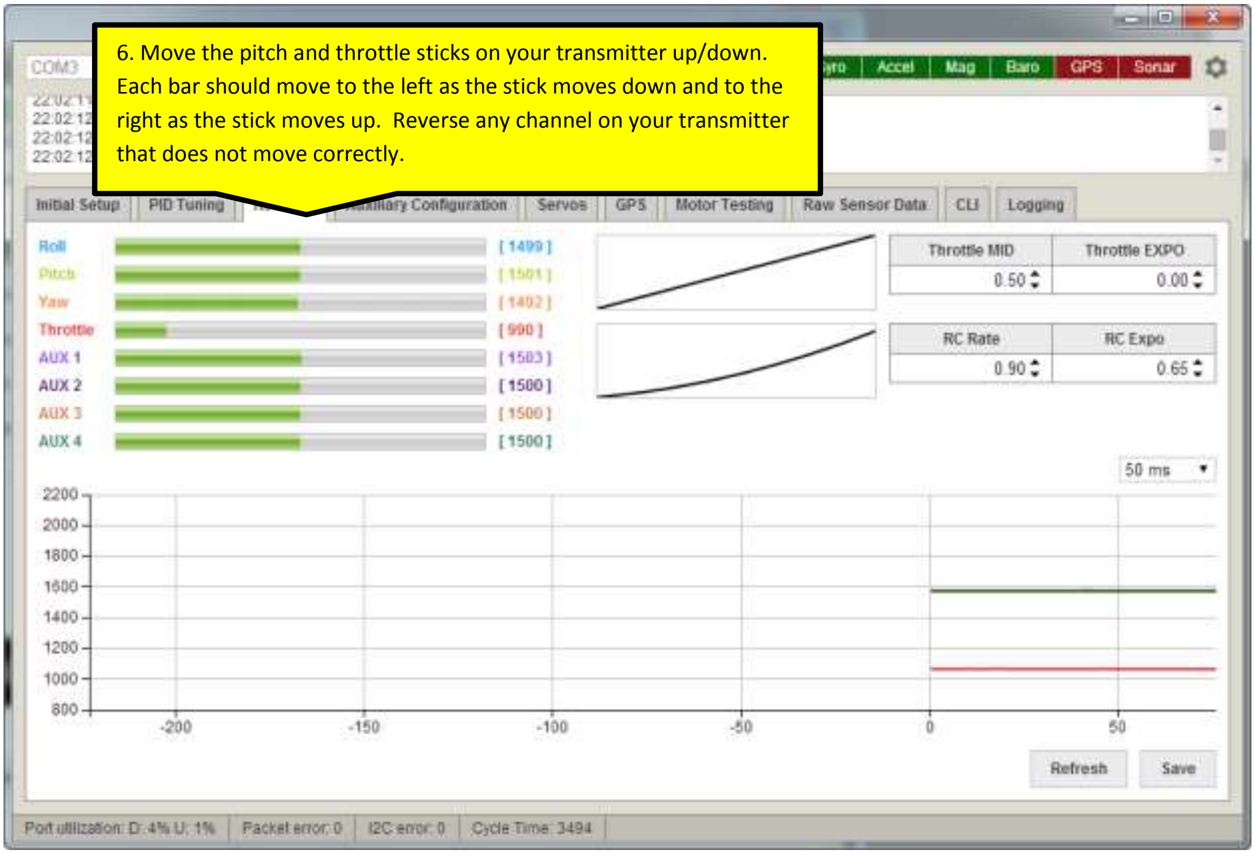
1. Connect the Flip32+ to your pc or laptop.
2. Start the BaseFlight Configurator.

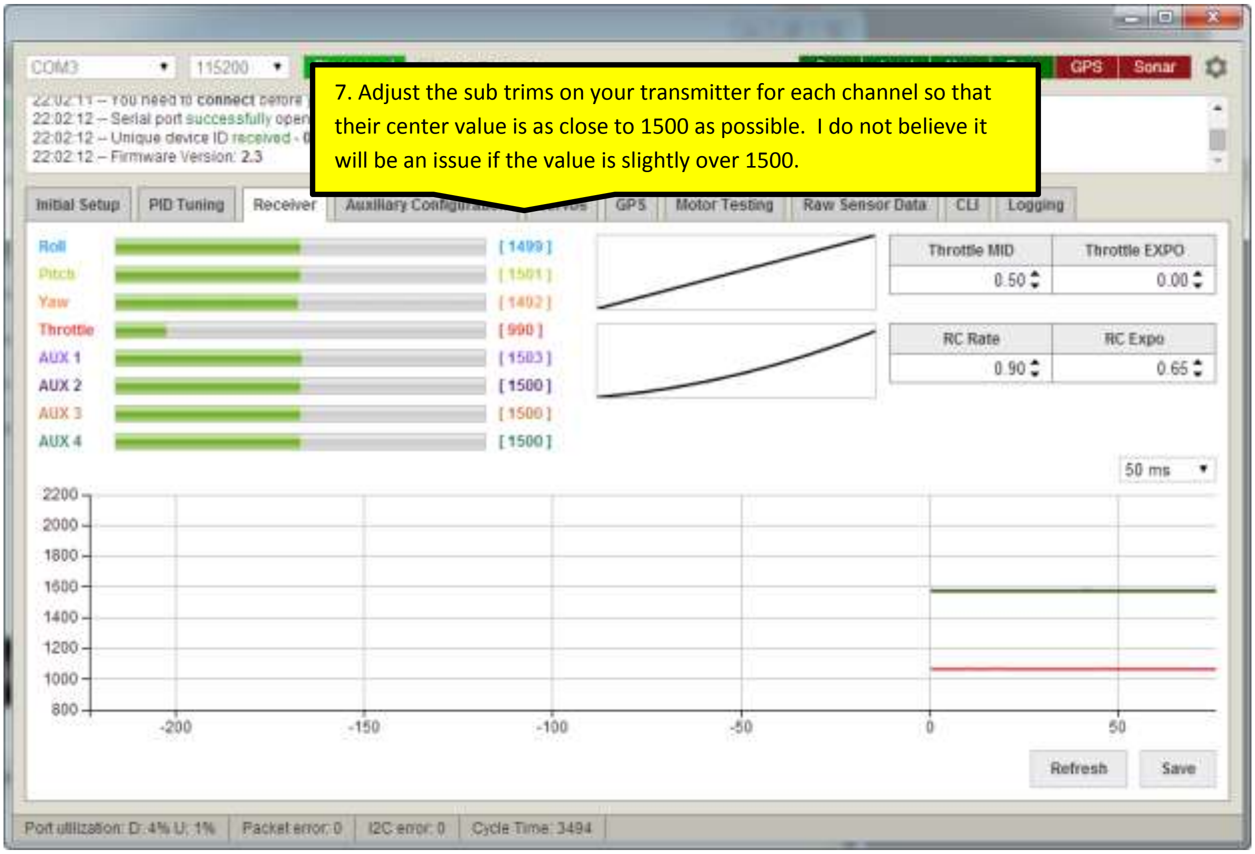
3. Click on the Connect button if not already connected.




COM3
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
22:02:11 – You need to connect before you can view any of the tabs
22:02:12 – Serial por
22:02:12 – Unique de
22:02:12 – Firmware
4. Click on the Receiver tab.
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task.
Reset Settings
Restore all settings to default.
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included)
Model: Quad X
Heading: 136 deg
RIGHT
FRONT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Accelerometer trims
Pitch: 0
Roll: 0
Magnetometer
Declination: 0
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3504


5. Move the roll and yaw sticks on your transmitter left/right and observe the status bars. Each bar should move in the same direction as the stick controlling it. Reverse any channel on your transmitter that does not move correctly.
Gyro
Accel
Mag
Baro
GPS
Sonar
Raw Sensor Data
CLI
Logging
Roll [1499]
Pitch [1501]
Yaw [1492]
Throttle [990]
AUX 1 [1503]
AUX 2 [1500]
AUX 3 [1500]
AUX 4 [1500]
Throttle MID 0.50
Throttle EXPO 0.00
RC Rate 0.90
RC Expo 0.65
50 ms
Refresh
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3494


6. Move the pitch and throttle sticks on your transmitter up/down. Each bar should move to the left as the stick moves down and to the right as the stick moves up. Reverse any channel on your transmitter that does not move correctly.
COM3
Accel
Mag
Baro
GPS
Sonar
Initial Setup
PID Tuning
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Roll [1499]
Pitch [1501]
Yaw [1492]
Throttle [990]
AUX 1 [1503]
AUX 2 [1500]
AUX 3 [1500]
AUX 4 [1500]
Throttle MID 0.50
Throttle EXPO 0.00
RC Rate 0.90
RC Expo 0.65
50 ms
Refresh
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3494


7. Adjust the sub trims on your transmitter for each channel so that their center value is as close to 1500 as possible. I do not believe it will be an issue if the value is slightly over 1500.
COM3
115200
GPS
Sonar
22:02:12 – Serial port successfully opened
22:02:12 – Unique device ID received
22:02:12 – Firmware Version: 2.3
Initial Setup
PID Tuning
Receiver
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Roll
Pitch
Yaw
Throttle
AUX 1
AUX 2
AUX 3
AUX 4
[1499]
[1501]
[1492]
[990]
[1503]
[1500]
[1500]
[1500]
Throttle MID
Throttle EXPO
0.50
0.00
RC Rate
RC Expo
0.90
0.65
50 ms
Refresh
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3494

FAILSAFE CONSIDERATIONS:

The failsafe feature is a function of the receiver and not the Flip32+ so a failsafe enabled receiver is required. When a failsafe is initiated, the Flip32+ receives a PWM throttle value that is lower than the current PWM throttle value and then those values or signals are sent to the ESCs to spin down or stop the motors.

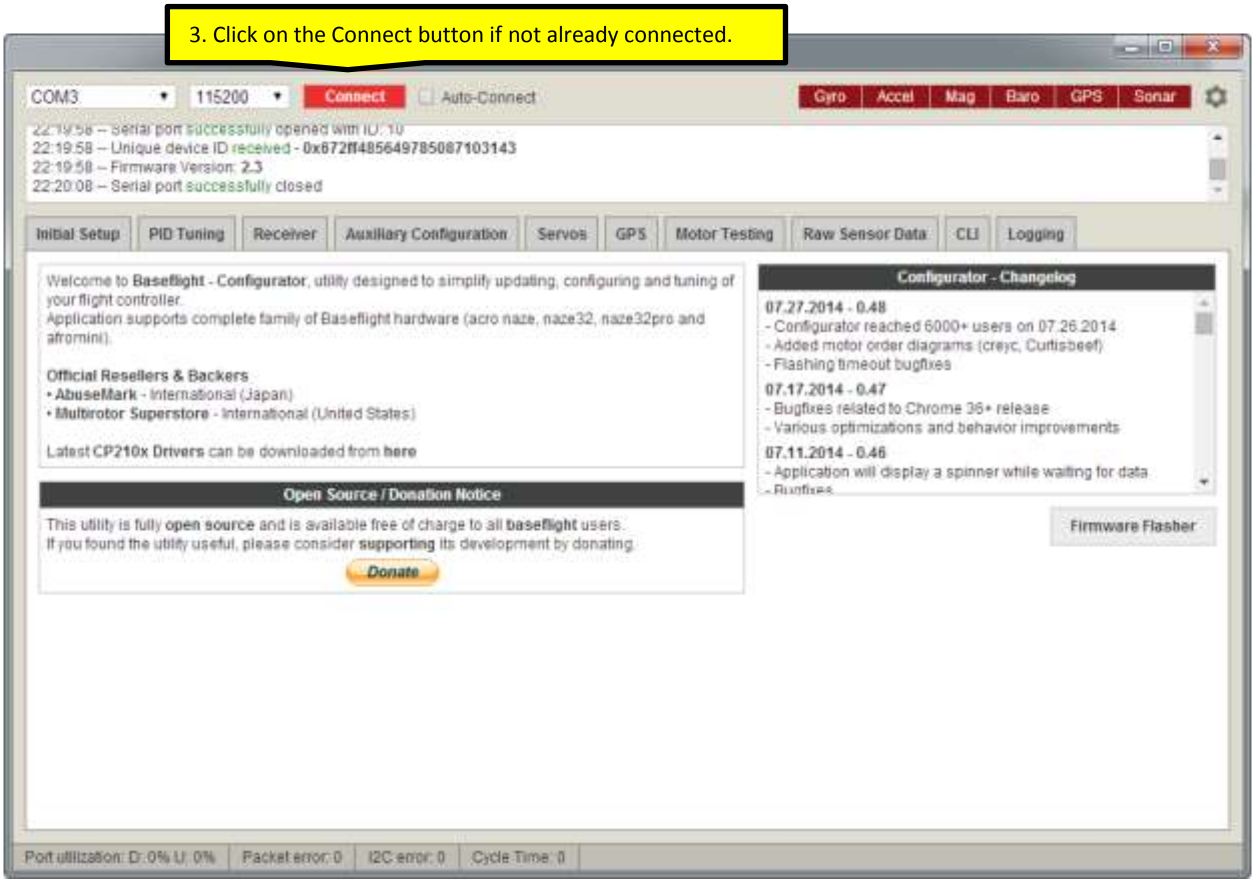
BaseFlight has a motor feature called MOTOR_STOP which is either enabled or disabled. By default, this value is disabled so that the motors idle up when the Flip32+ is armed. Ask yourself this:

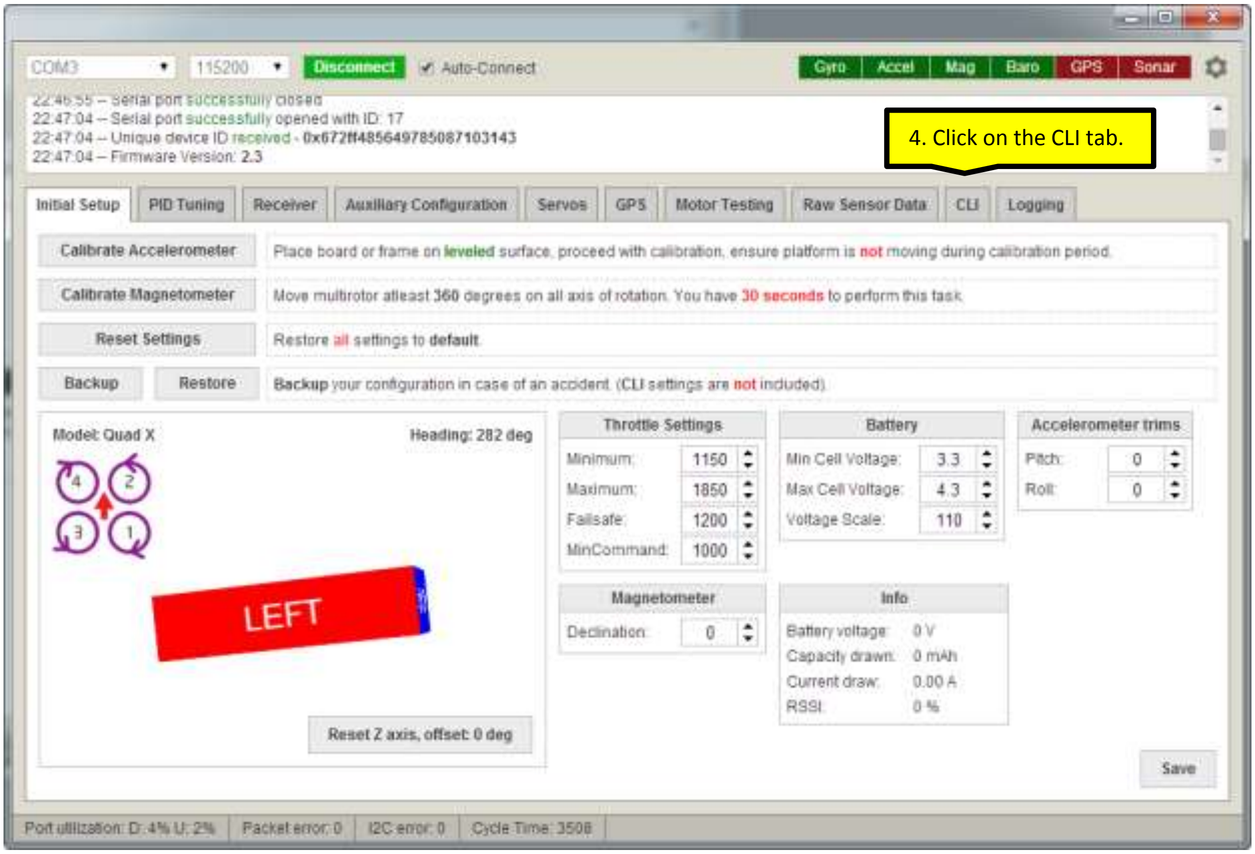
- Do I want to use the motors idling up as an indicator to let me know the Flip32+ is armed?
- Do I think that I or someone can get hurt by the motors idling up if I accidentally arm the Flip32+?
- Do I think that the motors idling down to arming speed instead of stopping completely will make a difference when failsafe is imitated and the multirotor is falling from the sky?

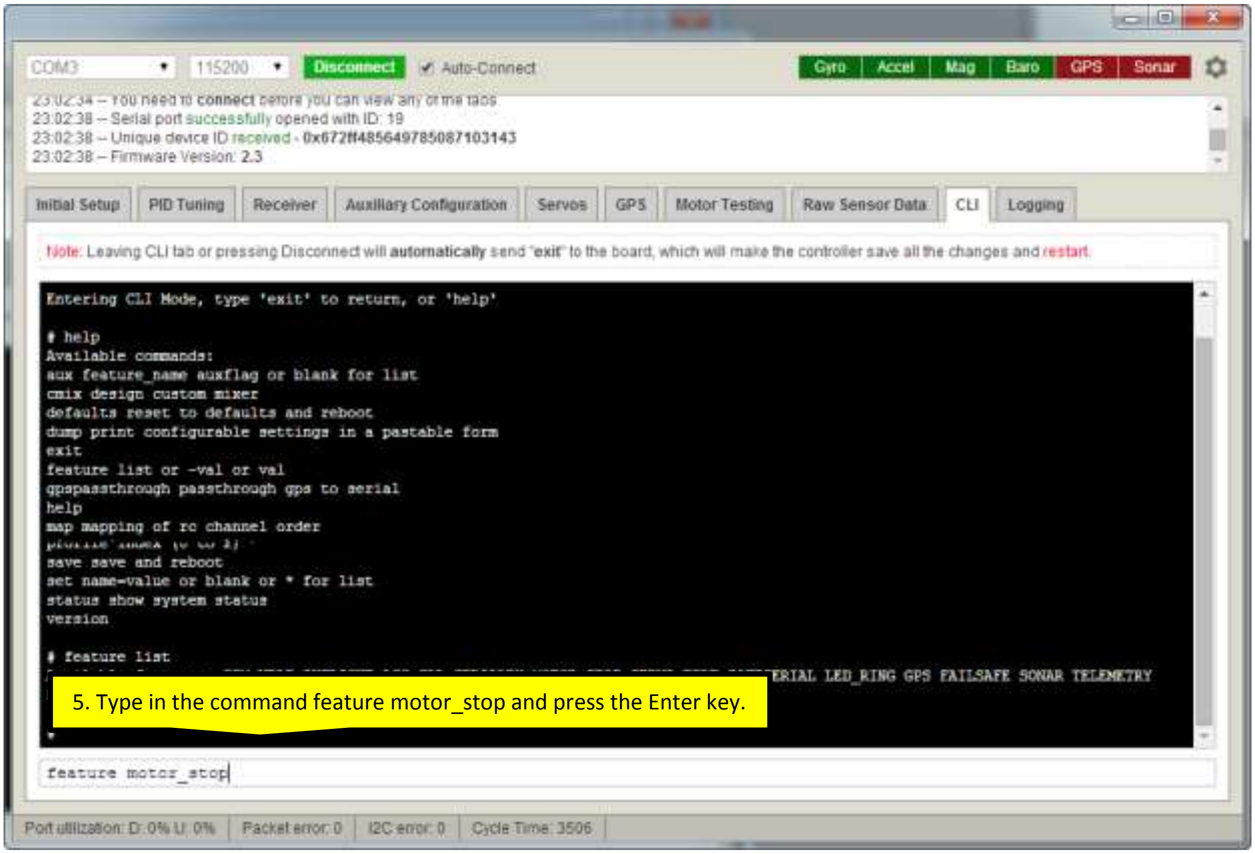
For me, the answers are Yes, No and No so I am leaving the MOTOR_STOP feature disabled. Just keep in mind that if you leave it as is, you will still see spinning props when failsafe is initiated but they will be spinning slowly.

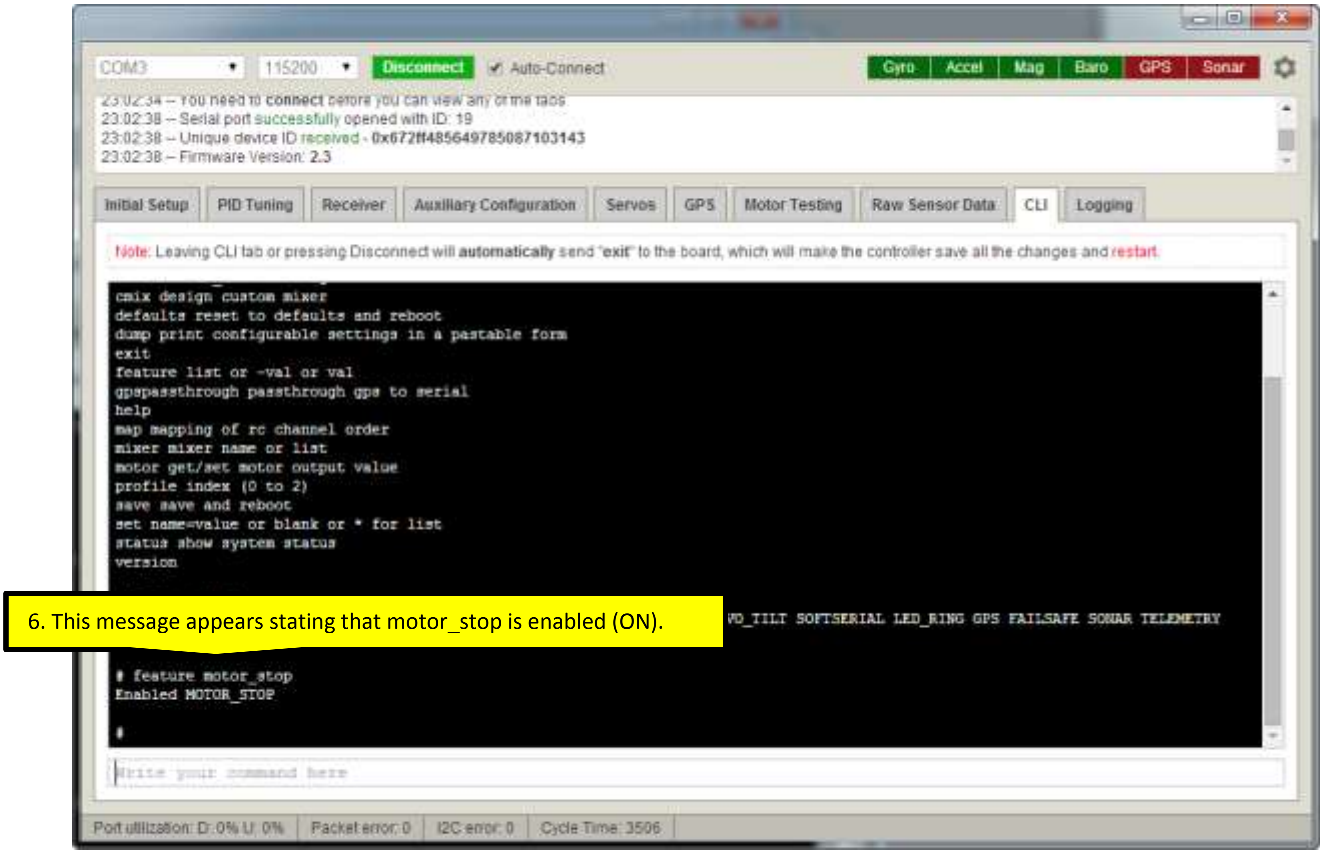
ENABLING/DISABLING THE MOTOR_STOP FEATURE:

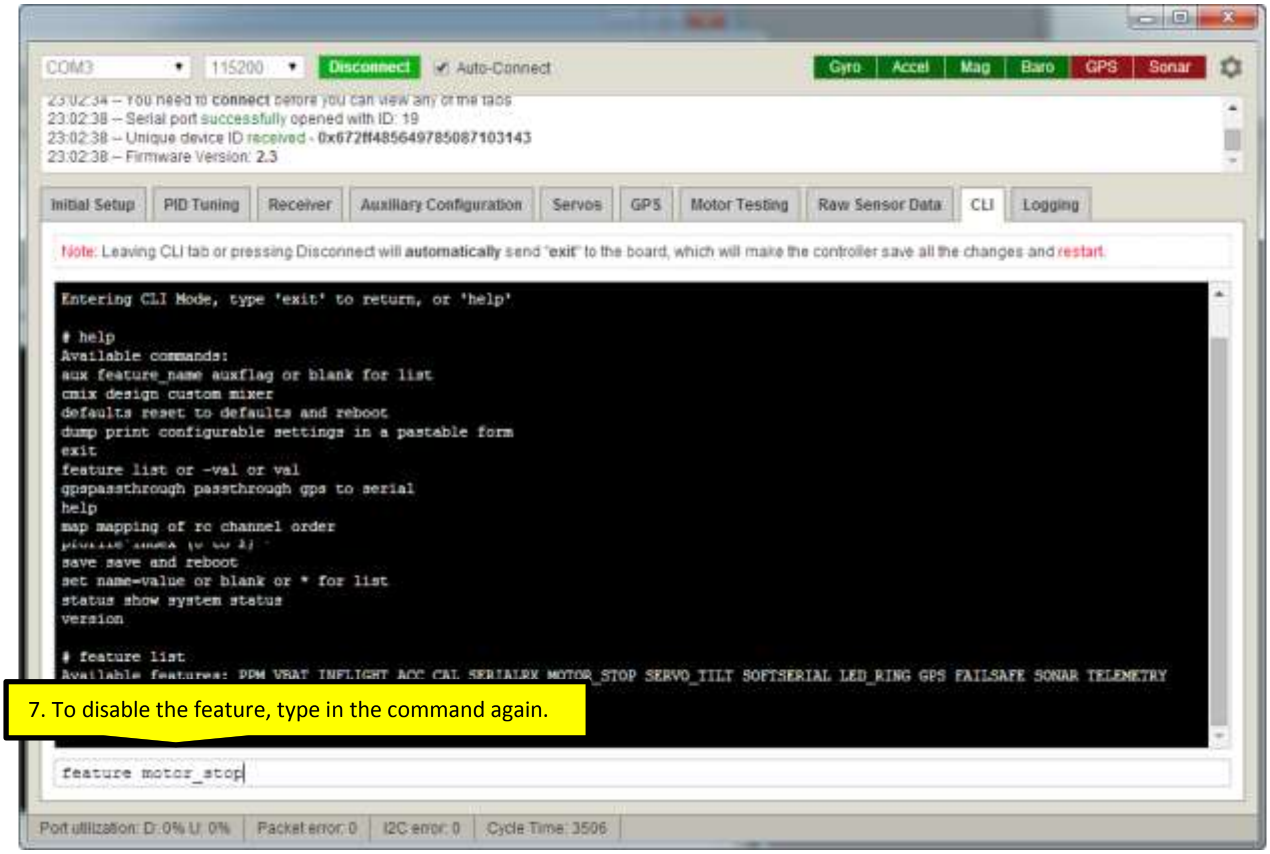
1. Connect the Flip32+ to your pc or laptop.
2. Start the BaseFlight Configurator.

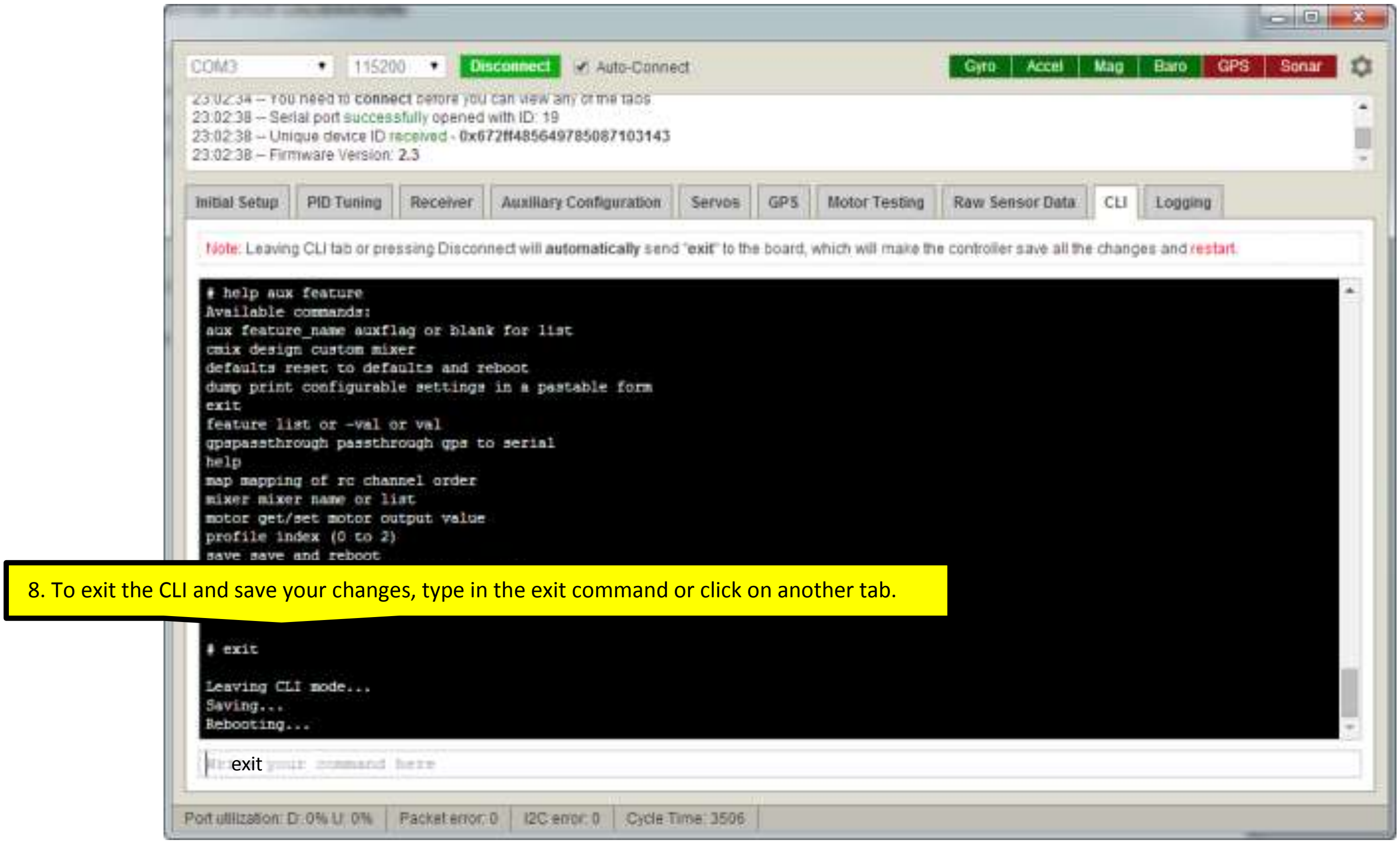



COM3
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
22:47:04 – Serial port successfully opened with ID: 17
22:47:04 – Unique device ID received - 0x672ff485649785087103143
22:47:04 – Firmware Version: 2.3
4. Click on the CLI tab.
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task.
Reset Settings
Restore all settings to default.
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included)
Model: Quad X
Heading: 282 deg
LEFT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Accelerometer trims
Pitch: 0
Roll: 0
Magnetometer
Declination: 0
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3508


COM3
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
23:02:38 -- Serial port successfully opened with ID: 19
23:02:38 -- Unique device ID received - 0x672ff485649785087103143
23:02:38 -- Firmware Version: 2.3
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Note: Leaving CLI tab or pressing Disconnect will automatically send "exit" to the board, which will make the controller save all the changes and restart.
Entering CLI Mode, type 'exit' to return, or 'help'
help
Available commands:
aux feature_name auxflag or blank for list
cmix design custom mixer
defaults reset to defaults and reboot
dump print configurable settings in a pastable form
exit
feature list or -val or val
gpspassthrough passthrough gps to serial
help
map mapping of rc channel order
save save and reboot
set name=value or blank or * for list
status show system status
version
feature list
ERIAL LED_RING GPS FAILSAFE SONAR TELEMETRY
5. Type in the command feature motor_stop and press the Enter key.
feature motor_stop
Port utilization: D: 0% U: 0%
Packet error: 0
I2C error: 0
Cycle Time: 3506

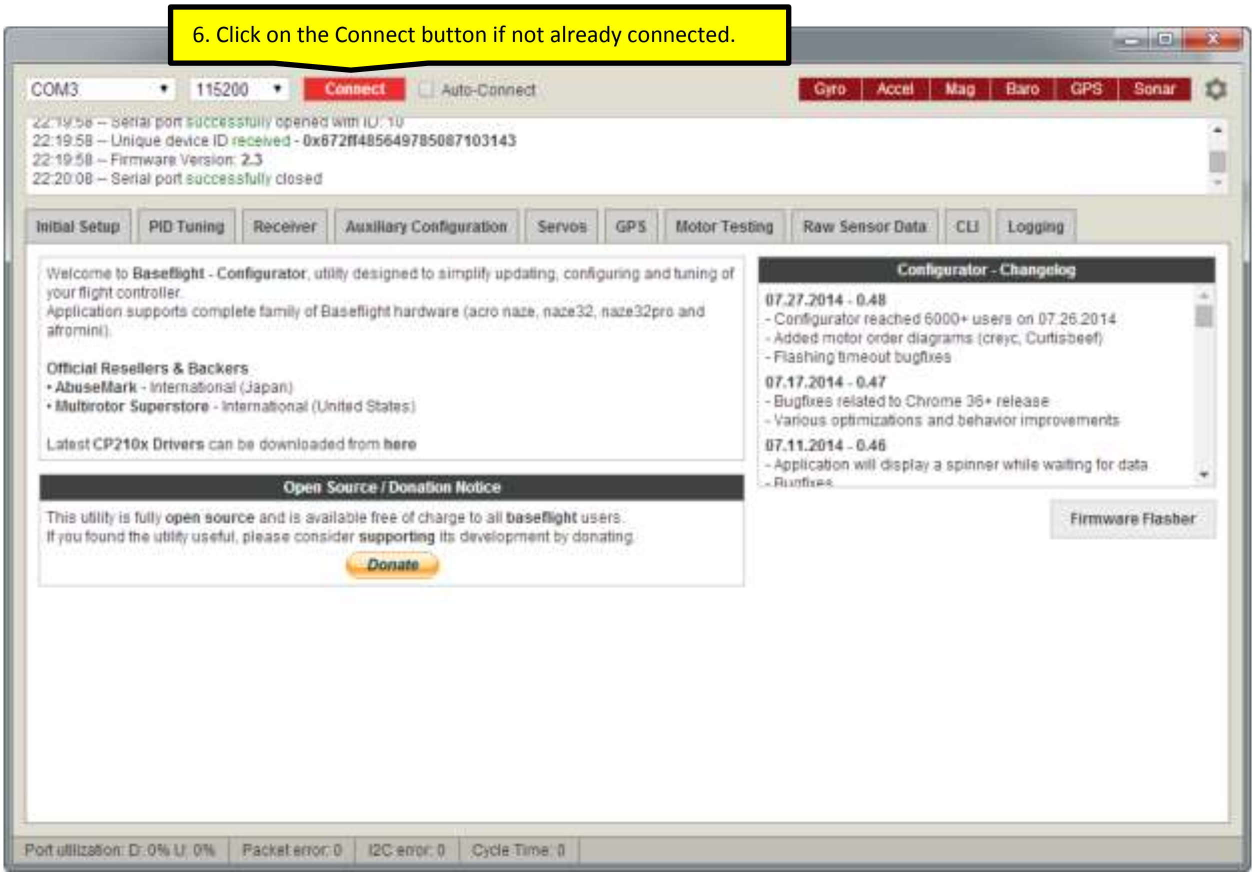

COM3
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
23:02:38 – Serial port successfully opened with ID: 19
23:02:38 – Unique device ID received - 0x672ff485649785087103143
23:02:38 – Firmware Version: 2.3
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Note: Leaving CLI tab or pressing Disconnect will automatically send "exit" to the board, which will make the controller save all the changes and restart.
cmix design custom mixer
defaults reset to defaults and reboot
dump print configurable settings in a pastable form
exit
feature list or -val or val
gpspassthrough passthrough gps to serial
help
map mapping of rc channel order
mixer mixer name or list
motor get/set motor output value
profile index (0 to 2)
save save and reboot
set name=value or blank or * for list
status show system status
version
6. This message appears stating that motor_stop is enabled (ON).
feature motor_stop
Enabled MOTOR_STOP
#
Write your command here
Port utilization: D: 0% U: 0%
Packet error: 0
I2C error: 0
Cycle Time: 3506

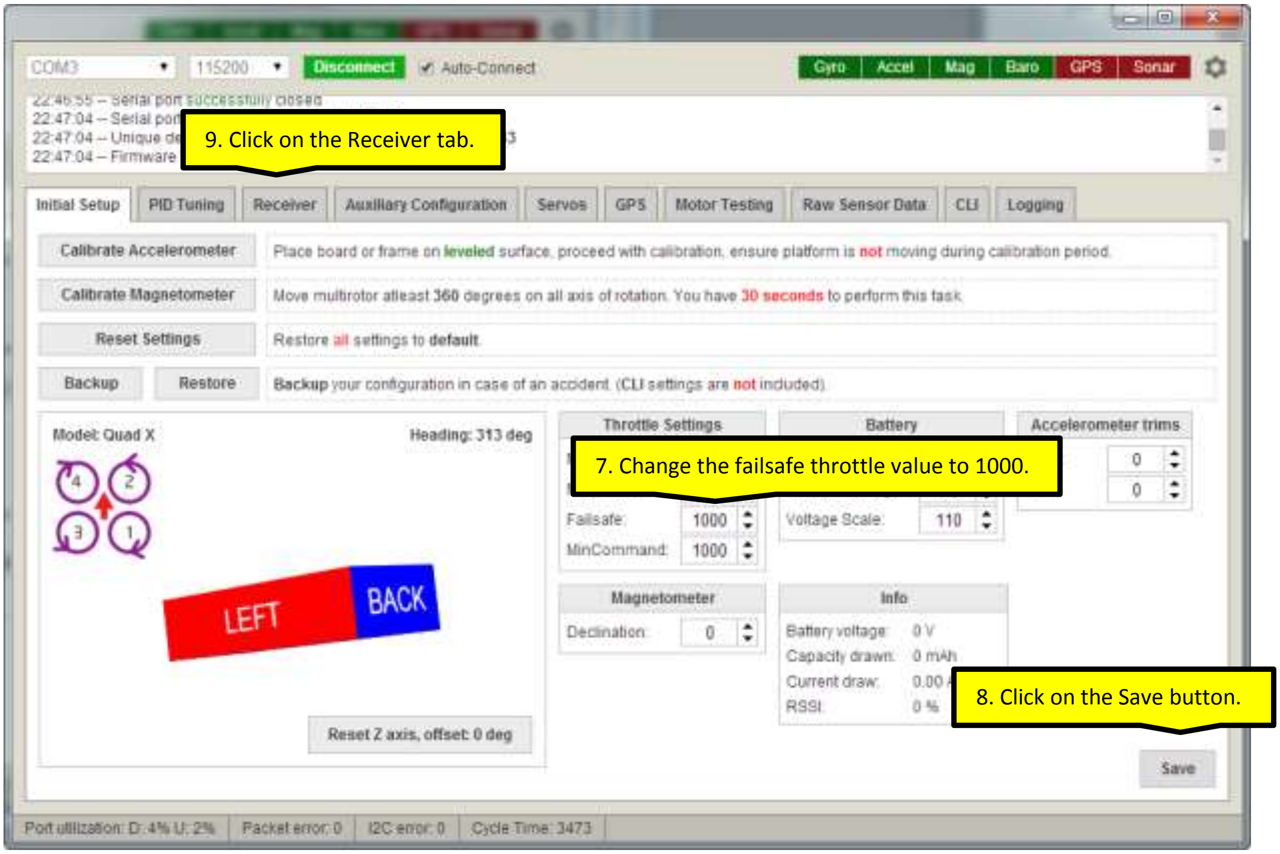

COM3
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
23:02:38 -- Serial port successfully opened with ID: 19
23:02:38 -- Unique device ID received - 0x672ff485649785087103143
23:02:38 -- Firmware Version: 2.3
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Note: Leaving CLI tab or pressing Disconnect will automatically send "exit" to the board, which will make the controller save all the changes and restart.
Entering CLI Mode, type 'exit' to return, or 'help'
help
Available commands:
aux feature_name auxflag or blank for list
cmix design custom mixer
defaults reset to defaults and reboot
dump print configurable settings in a pastable form
exit
feature list or -val or val
gpspassthrough passthrough gps to serial
help
map mapping of rc channel order
save save and reboot
set name=value or blank or * for list
status show system status
version
feature list
7. To disable the feature, type in the command again.
feature motor_stop
Port utilization: D: 0% U: 0%
Packet error: 0
I2C error: 0
Cycle Time: 3506

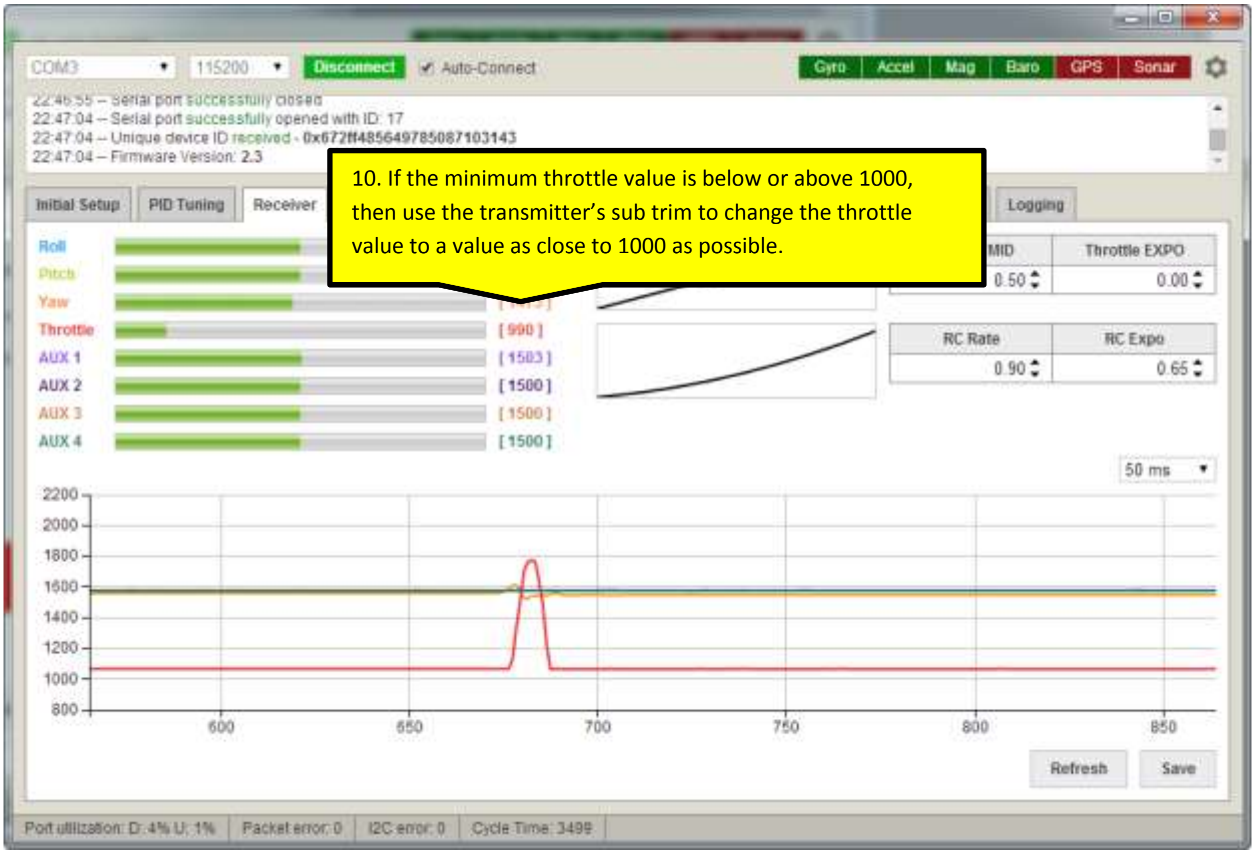

COM3
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
23:02:38 -- Serial port successfully opened with ID: 19
23:02:38 -- Unique device ID received - 0x672ff485649785087103143
23:02:38 -- Firmware Version: 2.3
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Note: Leaving CLI tab or pressing Disconnect will automatically send "exit" to the board, which will make the controller save all the changes and restart.
help aux feature
Available commands:
aux feature_name auxflag or blank for list
cmix design custom mixer
defaults reset to defaults and reboot
dump print configurable settings in a pastable form
exit
feature list or -val or val
gpspassthrough passthrough gps to serial
help
map mapping of rc channel order
mixer mixer name or list
motor get/set motor output value
profile index (0 to 2)
save save and reboot
8. To exit the CLI and save your changes, type in the exit command or click on another tab.
exit
Leaving CLI mode...
Saving...
Rebooting...
exit
Port utilization: D: 0% U: 0%
Packet error: 0
I2C error: 0
Cycle Time: 3506

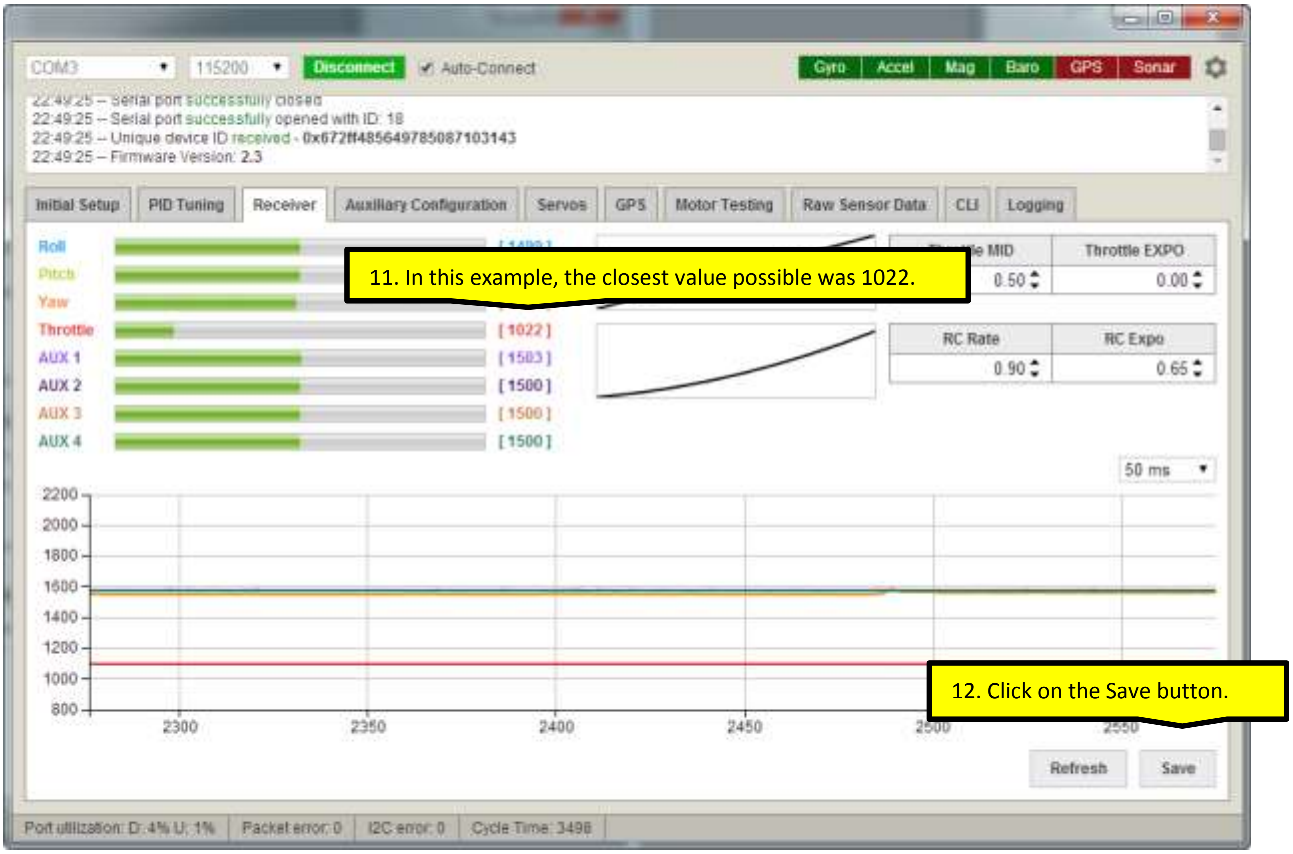
SETTING THE MINIMUM PWM THROTTLE VALUE FOR FAILSAFE:

1. Ensure that your transmitter as no sub trims set for the throttle channel
2. Ensure that the minimum and maximum limits are set on your transmitter for throttle channel
3. Set failsafe on your receiver
4. Connect the Flip32+ to your pc or laptop.
5. Start the BaseFlight Configurator.




COM3
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
9. Click on the Receiver tab.
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task
Reset Settings
Restore all settings to default
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included)
Model: Quad X
Heading: 313 deg
LEFT
BACK
Reset Z axis, offset: 0 deg
Throttle Settings
Battery
Accelerometer trims
7. Change the failsafe throttle value to 1000.
Failsafe:
1000
MinCommand:
1000
Voltage Scale:
110
Magnetometer
Declination:
0
Info
Battery voltage:
0 V
Capacity drawn:
0 mAh
Current draw:
RSSI:
0 %
8. Click on the Save button.
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3473

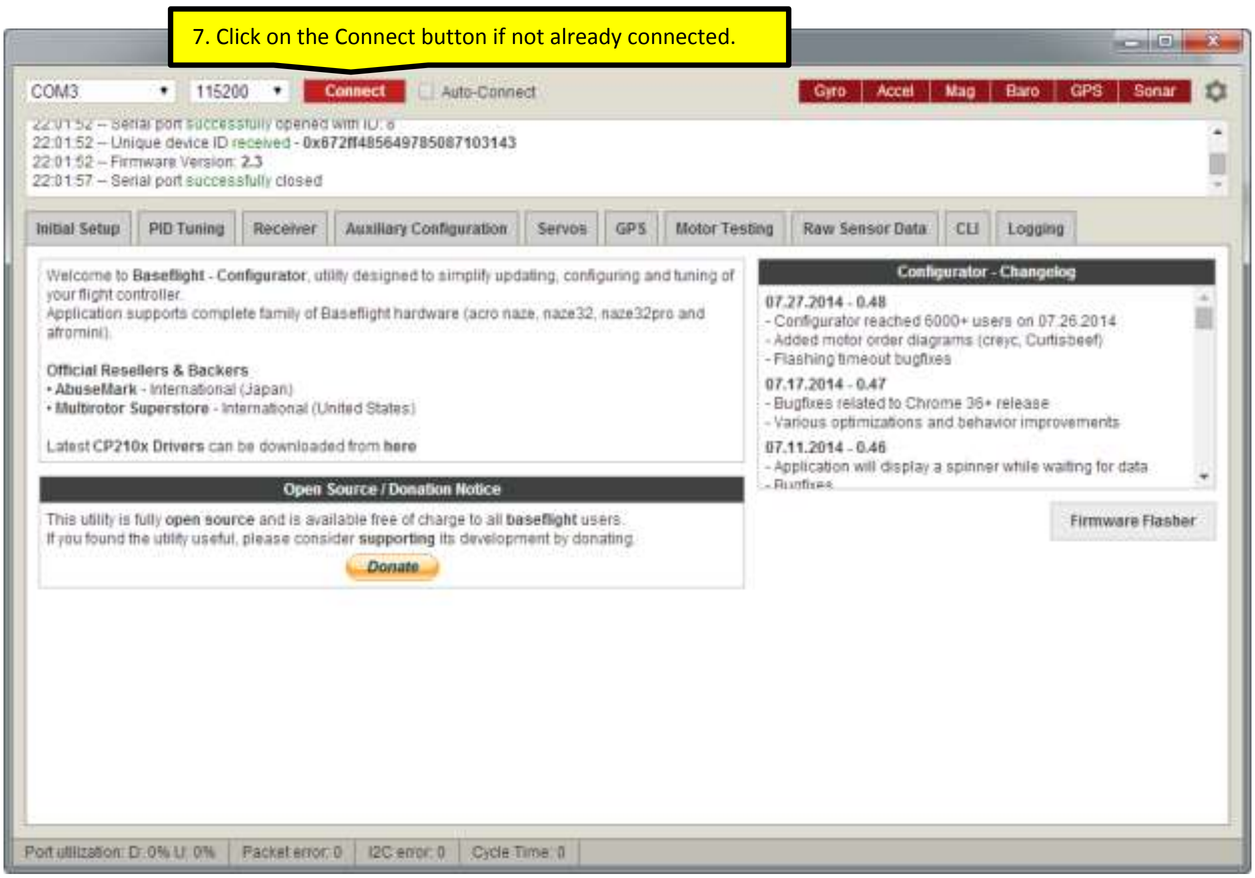

10. If the minimum throttle value is below or above 1000, then use the transmitter's sub trim to change the throttle value to a value as close to 1000 as possible.
COM3
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
22:47:04 – Serial port successfully opened with ID: 17
22:47:04 – Unique device ID received - 0x672ff485649785087103143
22:47:04 – Firmware Version: 2.3
Initial Setup
PID Tuning
Receiver
Logging
Roll
Pitch
Yaw
Throttle
AUX 1
AUX 2
AUX 3
AUX 4
[990]
[1503]
[1500]
[1500]
[1500]
MID
Throttle EXPO
0.50
0.00
RC Rate
RC Expo
0.90
0.65
50 ms
Refresh
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3499

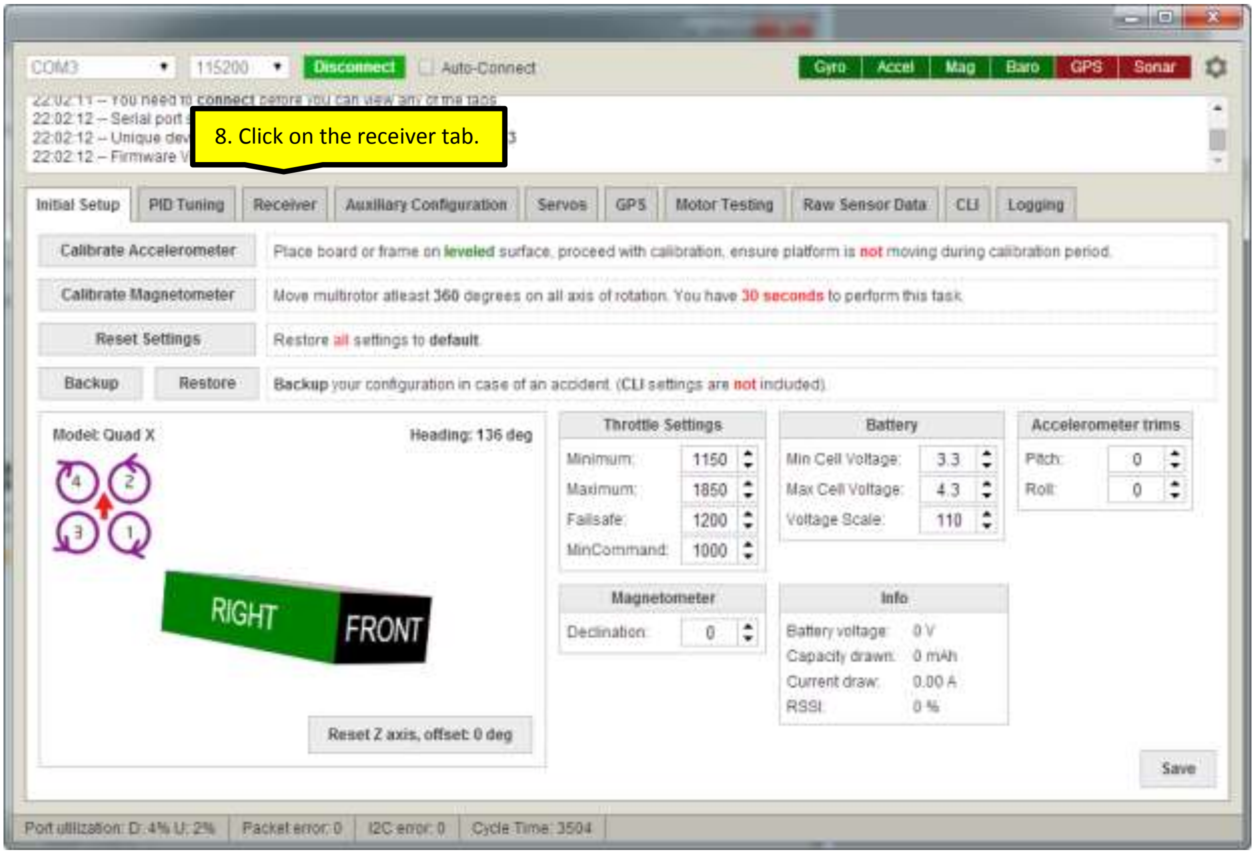


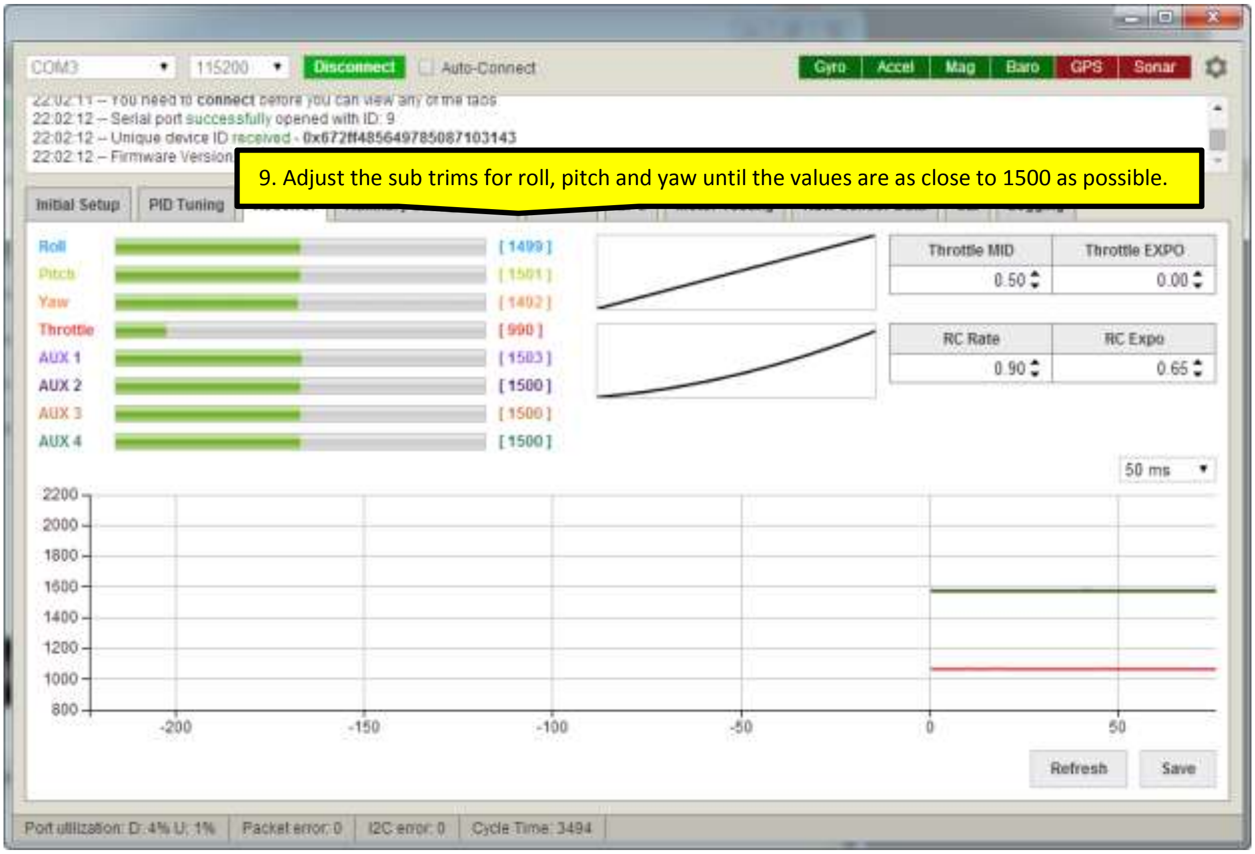
COM3
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
22:49:25 -- Serial port successfully opened with ID: 18
22:49:25 -- Unique device ID received - 0x672ff485649785087103143
22:49:25 -- Firmware Version: 2.3
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Roll
Pitch
Yaw
Throttle
AUX 1
AUX 2
AUX 3
AUX 4
[1022]
[1503]
[1500]
[1500]
[1500]
Throttle EXPO
0.50
0.00
RC Rate
RC Expo
0.90
0.65
50 ms
11. In this example, the closest value possible was 1022.
12. Click on the Save button.
Refresh
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3498

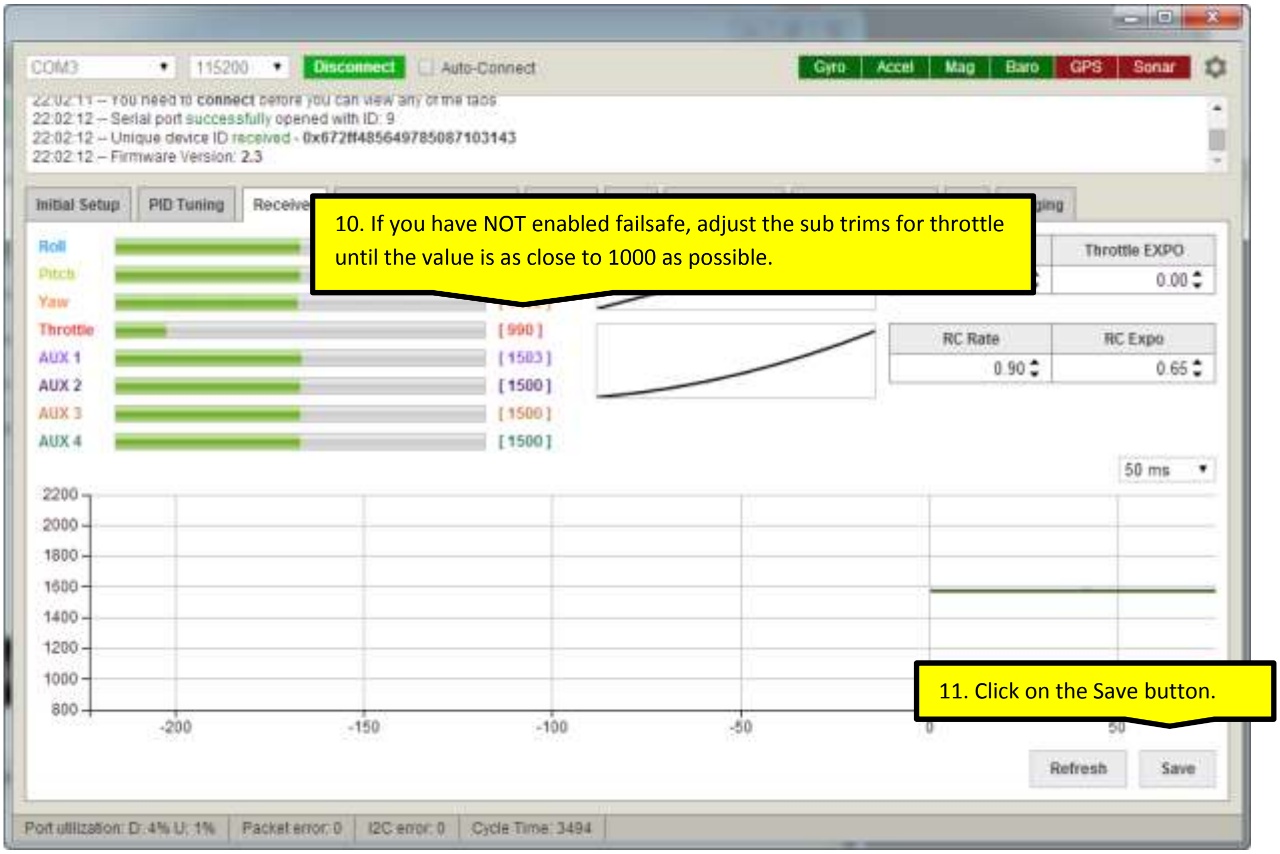
STICK CALIBRATION:

1. if you have enabled failsafe and changed the throttle sub trims, skip to step 3
2. Ensure that your transmitter does not have sub trims set for the throttle channel
3. Ensure that your transmitter does not have sub trims set for the roll, pitch and yaw channels
4. Ensure that your transmitter does not have any sub trims set for any switches
5. Connect the Flip32+ to your pc or laptop.
6. Start the BaseFlight Configurator.



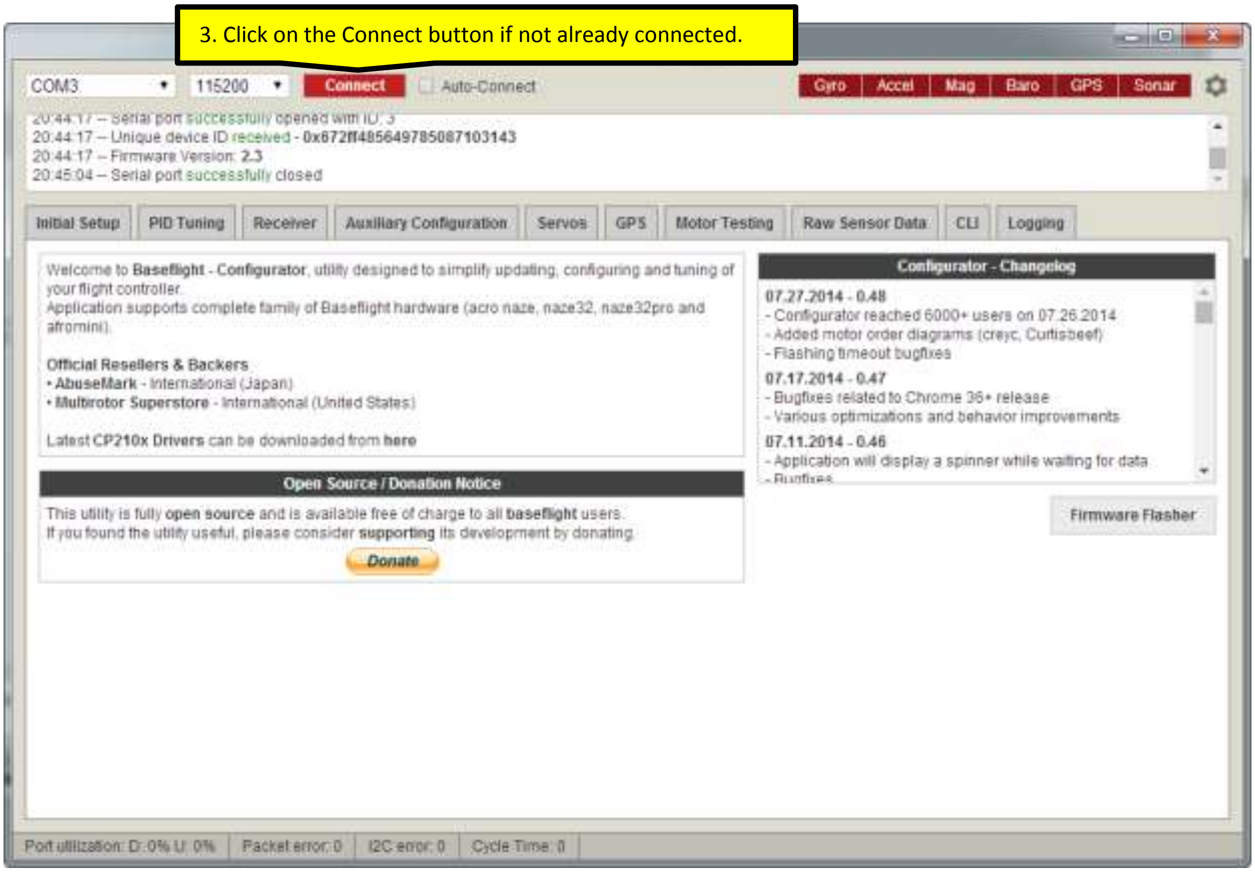

COM3
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
22:02:12 – Serial port
22:02:12 – Unique dev
22:02:12 – Firmware V
8. Click on the receiver tab.
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task.
Reset Settings
Restore all settings to default
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included)
Model: Quad X
Heading: 136 deg
RIGHT
FRONT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Accelerometer trims
Pitch: 0
Roll: 0
Magnetometer
Declination: 0
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3504

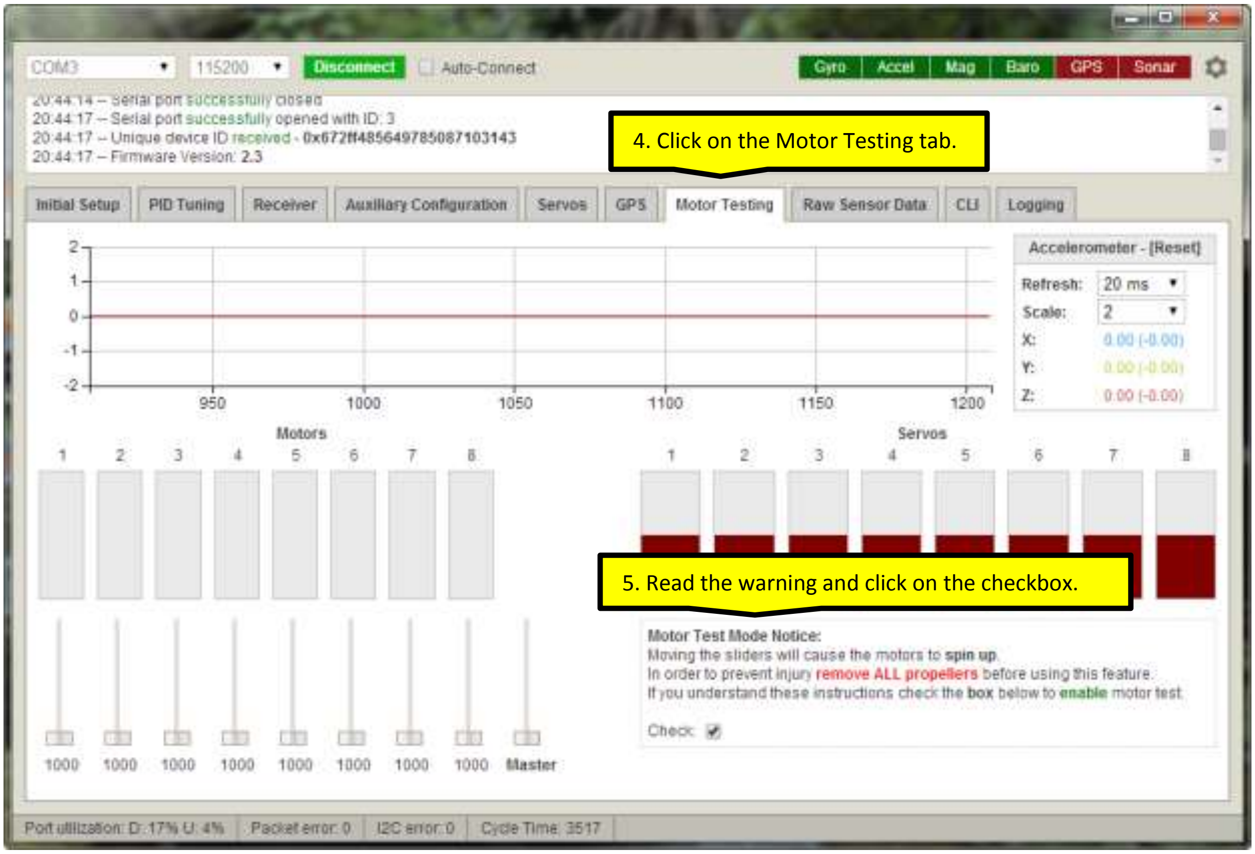

COM3
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
22:02:12 – Serial port successfully opened with ID: 9
22:02:12 – Unique device ID received - 0x672ff485649785087103143
9. Adjust the sub trims for roll, pitch and yaw until the values are as close to 1500 as possible.
Initial Setup
PID Tuning
Roll
Pitch
Yaw
Throttle
AUX 1
AUX 2
AUX 3
AUX 4
[1499]
[1501]
[1492]
[990]
[1503]
[1500]
[1500]
[1500]
Throttle MID
Throttle EXPO
0.50
0.00
RC Rate
RC Expo
0.90
0.65
50 ms
Refresh
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3494


COM3
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
22:02:12 – Serial port successfully opened with ID: 9
22:02:12 – Unique device ID received - 0x672ff485649785087103143
22:02:12 – Firmware Version: 2.3
Initial Setup
PID Tuning
10. If you have NOT enabled failsafe, adjust the sub trims for throttle until the value is as close to 1000 as possible.
Roll
Pitch
Yaw
Throttle
AUX 1
AUX 2
AUX 3
AUX 4
[990]
[1503]
[1500]
[1500]
[1500]
Throttle EXPO
0.00
RC Rate
0.90
RC Expo
0.65
50 ms
11. Click on the Save button.
Refresh
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3494

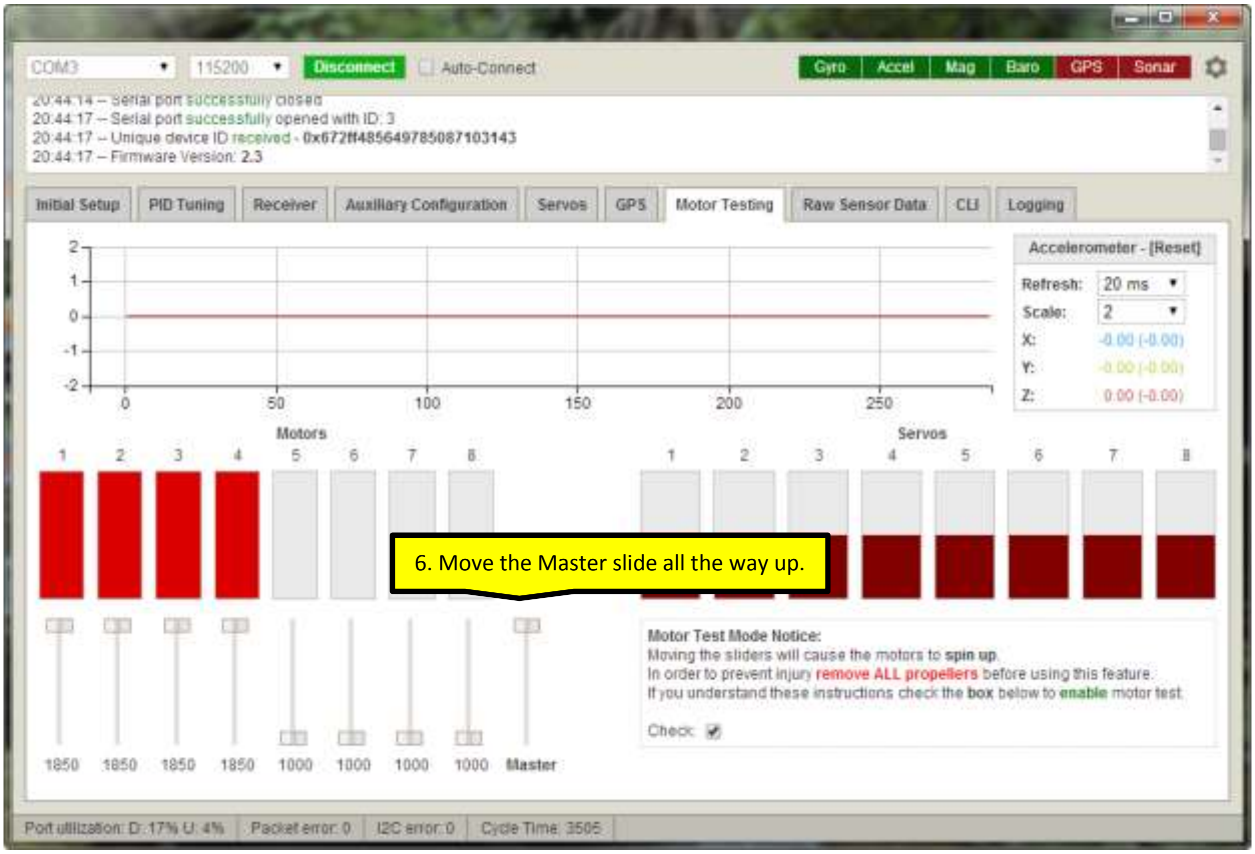
ESC CALIBRATION:

1. Ensure that you have performed the stick calibration prior to performing this calibration
2. Connect the Flip32+ to your pc or laptop without the main battery connected to the multirotor

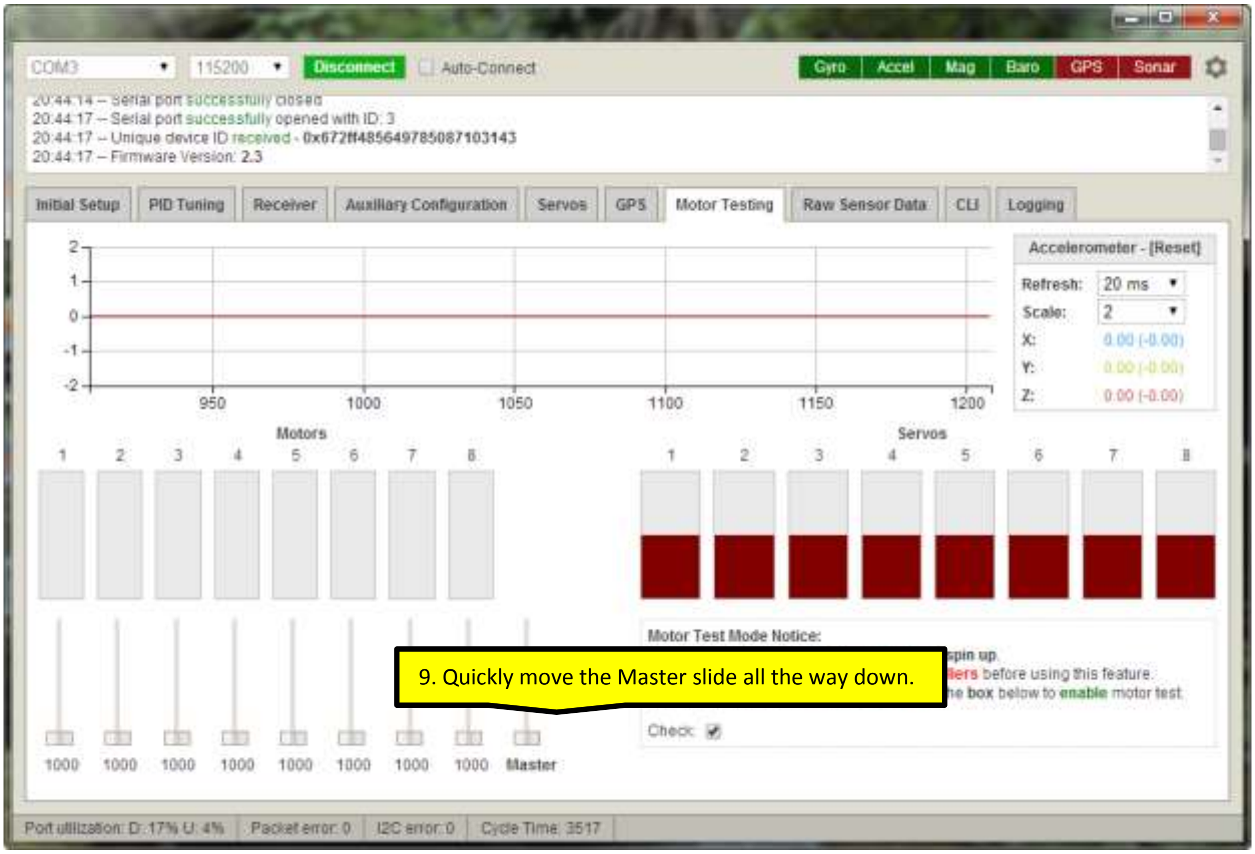




COM3
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
20:44:17 -- Serial port successfully opened with ID: 3
20:44:17 -- Unique device ID received - 0x672ff485649785087103143
20:44:17 -- Firmware Version: 2.3
4. Click on the Motor Testing tab.
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Accelerometer - [Reset]
Refresh: 20 ms
Scale: 2
X: 0.00 (-0.00)
Y: 0.00 (-0.00)
Z: 0.00 (-0.00)
Motors
Servos
5. Read the warning and click on the checkbox.
Motor Test Mode Notice:
Moving the sliders will cause the motors to spin up.
In order to prevent injury remove ALL propellers before using this feature.
If you understand these instructions check the box below to enable motor test.
Check:
Master
Port utilization: D: 17% U: 4%
Packet error: 0
I2C error: 0
Cycle Time: 3517



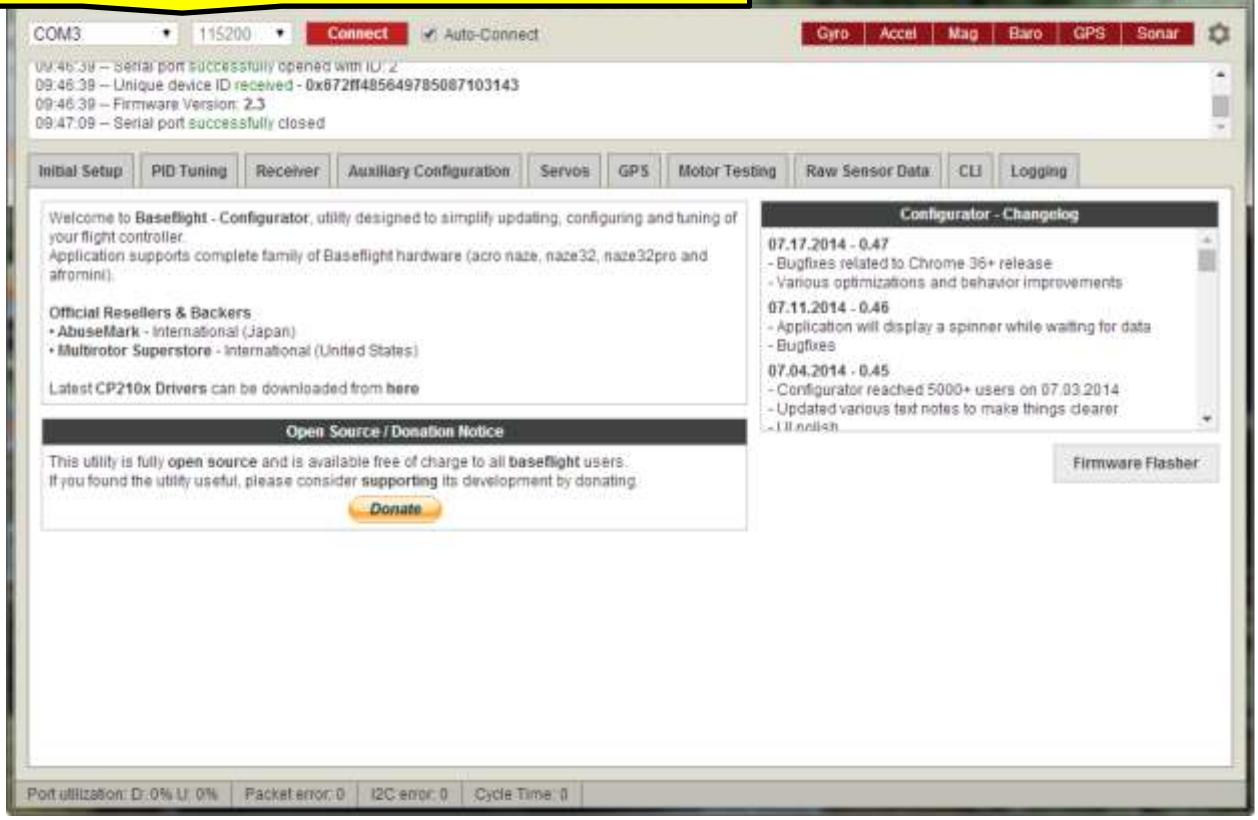
7. Plug in the multirotor main battery
8. The ESCs should sing their calibration song. It sounds a bit different for SimonK flashed ESCs

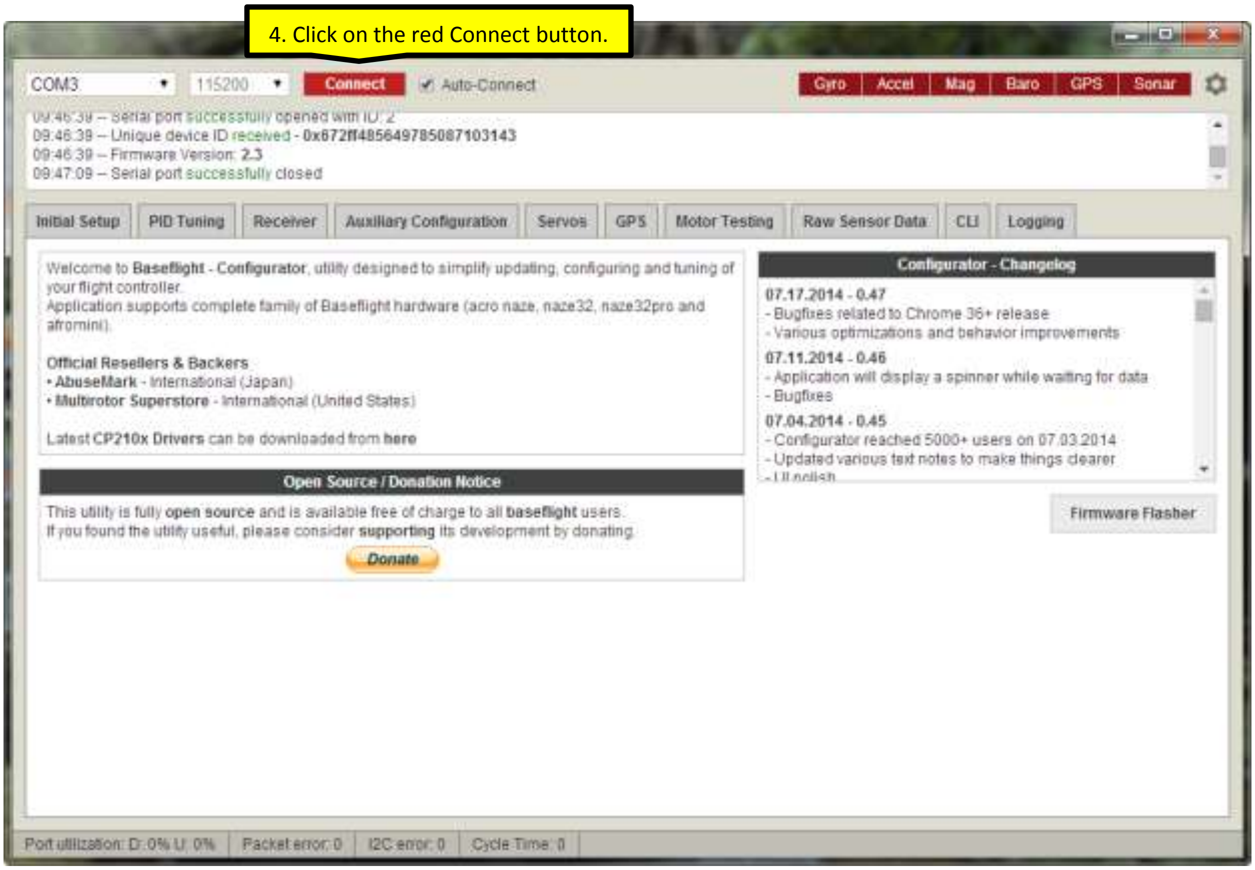


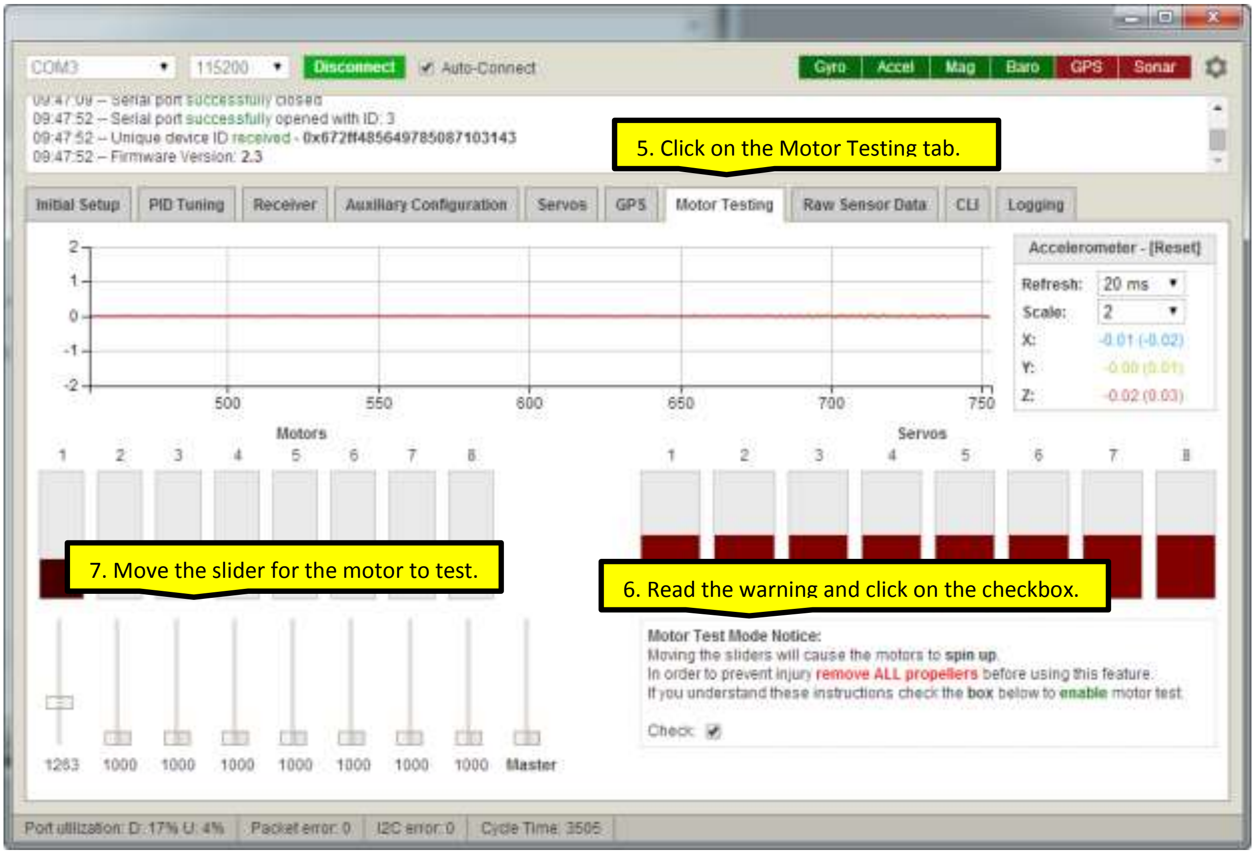
10. The ESC should sing their calibration song and beep the number of battery cells. It sounds a bit different for SimonK flashed ESCs.

MOTOR TESTING:

1. Connect the Flip32+ to your pc or laptop.
2. Start the BaseFlight Configurator.
3. Ensure the correct COM port and speed for your pc or laptop is selected.

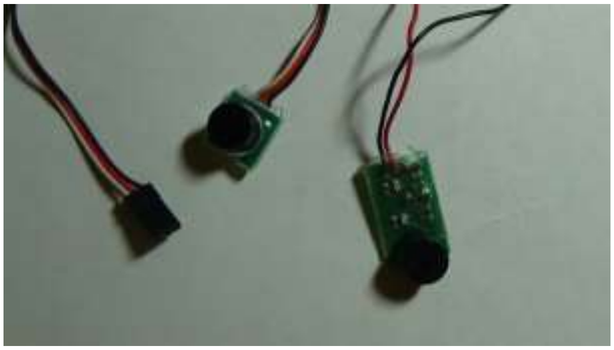



4. Click on the red Connect button.
COM3
115200
Connect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
09:46:39 -- Unique device ID received - 0x672ff485649785087103143
09:46:39 -- Firmware Version: 2.3
09:47:09 -- Serial port successfully closed
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Welcome to Baseflight - Configurator, utility designed to simplify updating, configuring and tuning of your flight controller.
Application supports complete family of Baseflight hardware (acro naze, naze32, naze32pro and afromini).
Official Resellers & Backers
• AbuseMark - International (Japan)
• Multirotor Superstore - International (United States)
Latest CP210x Drivers can be downloaded from here
Open Source / Donation Notice
This utility is fully open source and is available free of charge to all baseflight users.
If you found the utility useful, please consider supporting its development by donating.
Donate
Configurator - Changelog
07.17.2014 - 0.47
- Bugfixes related to Chrome 36+ release
- Various optimizations and behavior improvements
07.11.2014 - 0.46
- Application will display a spinner while waiting for data
- Bugfixes
07.04.2014 - 0.45
- Configurator reached 5000+ users on 07.03.2014
- Updated various text notes to make things clearer
Firmware Flasher
Port utilization: D: 0% U: 0%
Packet error: 0
I2C error: 0
Cycle Time: 0


5. Click on the Motor Testing tab.
7. Move the slider for the motor to test.
6. Read the warning and click on the checkbox.
Motor Test Mode Notice:
Moving the sliders will cause the motors to spin up.
In order to prevent injury remove ALL propellers before using this feature.
If you understand these instructions check the box below to enable motor test.
Check:

LOST MODEL ALARM:

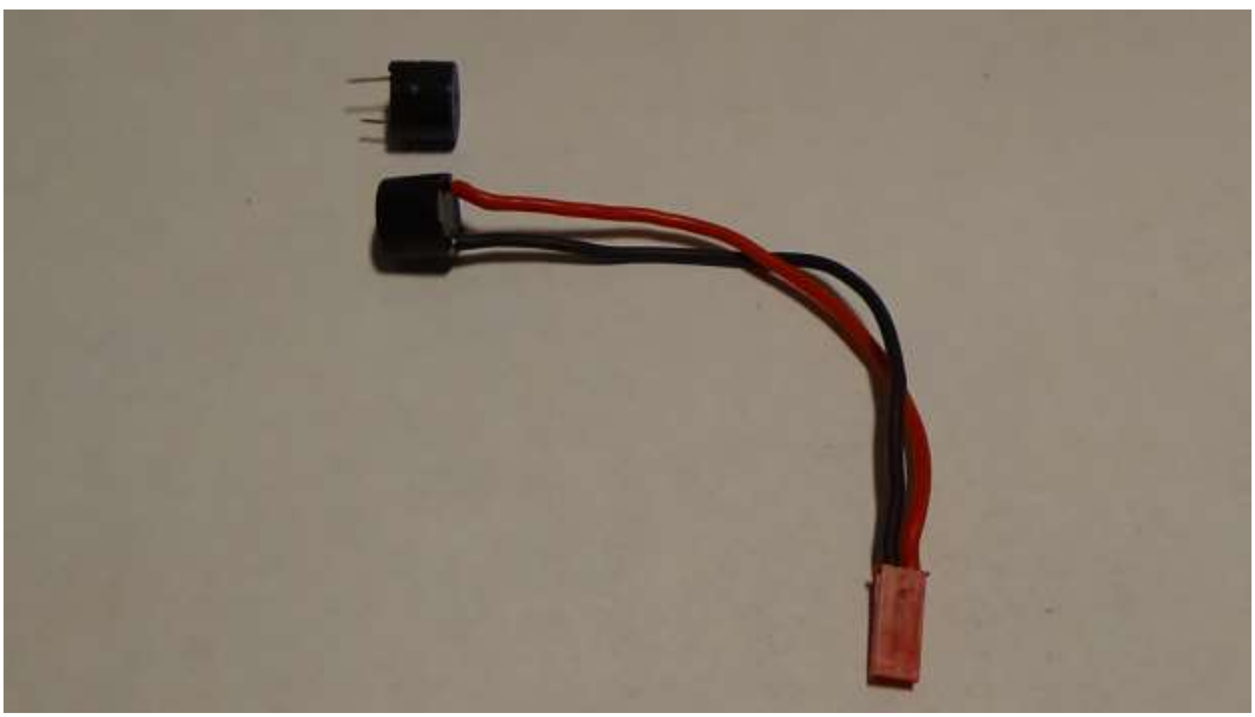
The picture on the left shows two typical lost model alarms while the picture on the right shows a typical Piezo buzzer. The lost model alarms on the left will not work on the Flip32+ because they require a signal pin in addition to power and ground. The Piezo buzzer on the right will work because it only requires voltage and ground.





Once I got the Piezo buzzer working, I noticed that the sound it emitted was not very loud. I knew that the sound emitted from the lost model alarm was much louder so I decided to hack the Piezo buzzer from that. If you do not have a lost model alarm already, you can just get a large size Piezo buzzer, i.e. 12V that will work just fine and loud.

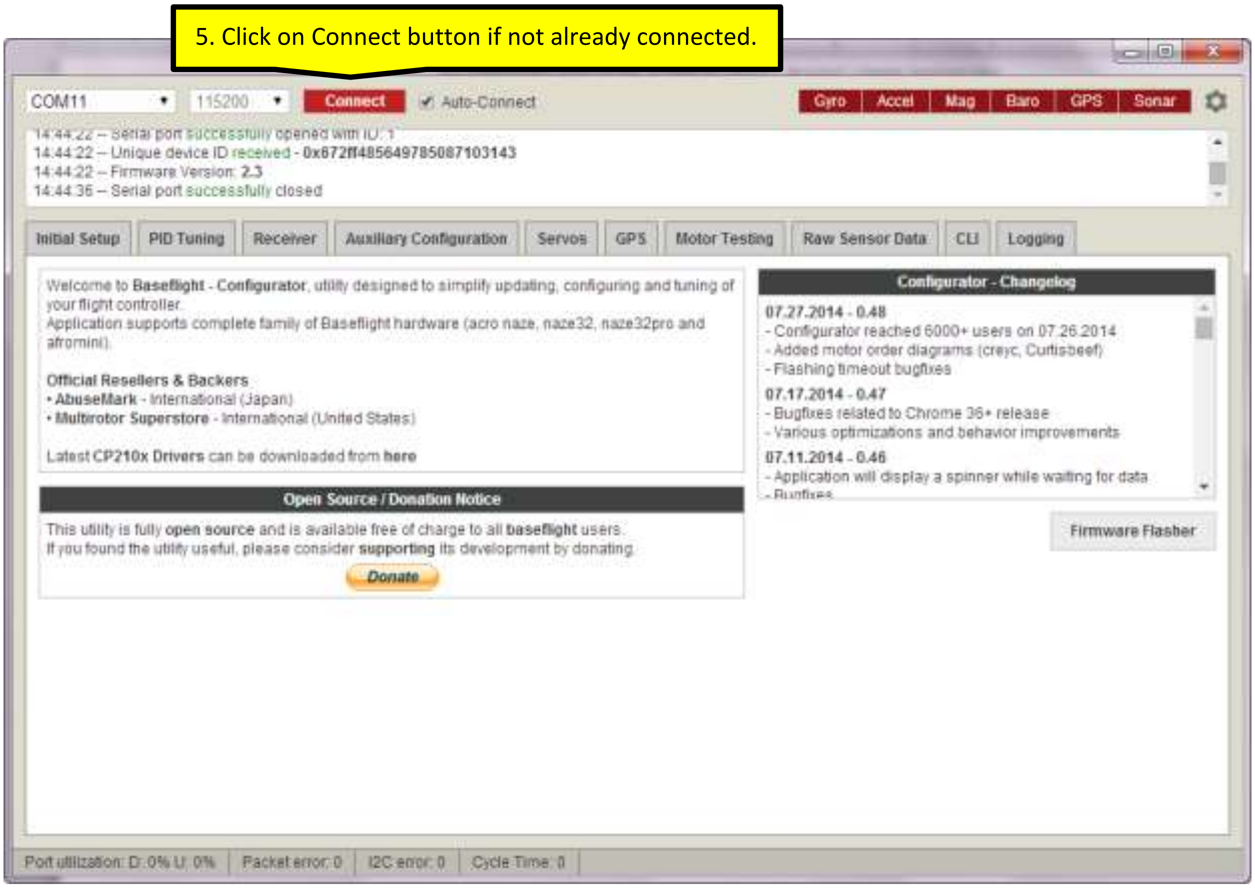
In this picture the low sounding Piezo buzzer is on the top and the hacked loud sounding Piezo buzzer is on the bottom. They are the same physical size but the hacked one is so much louder.

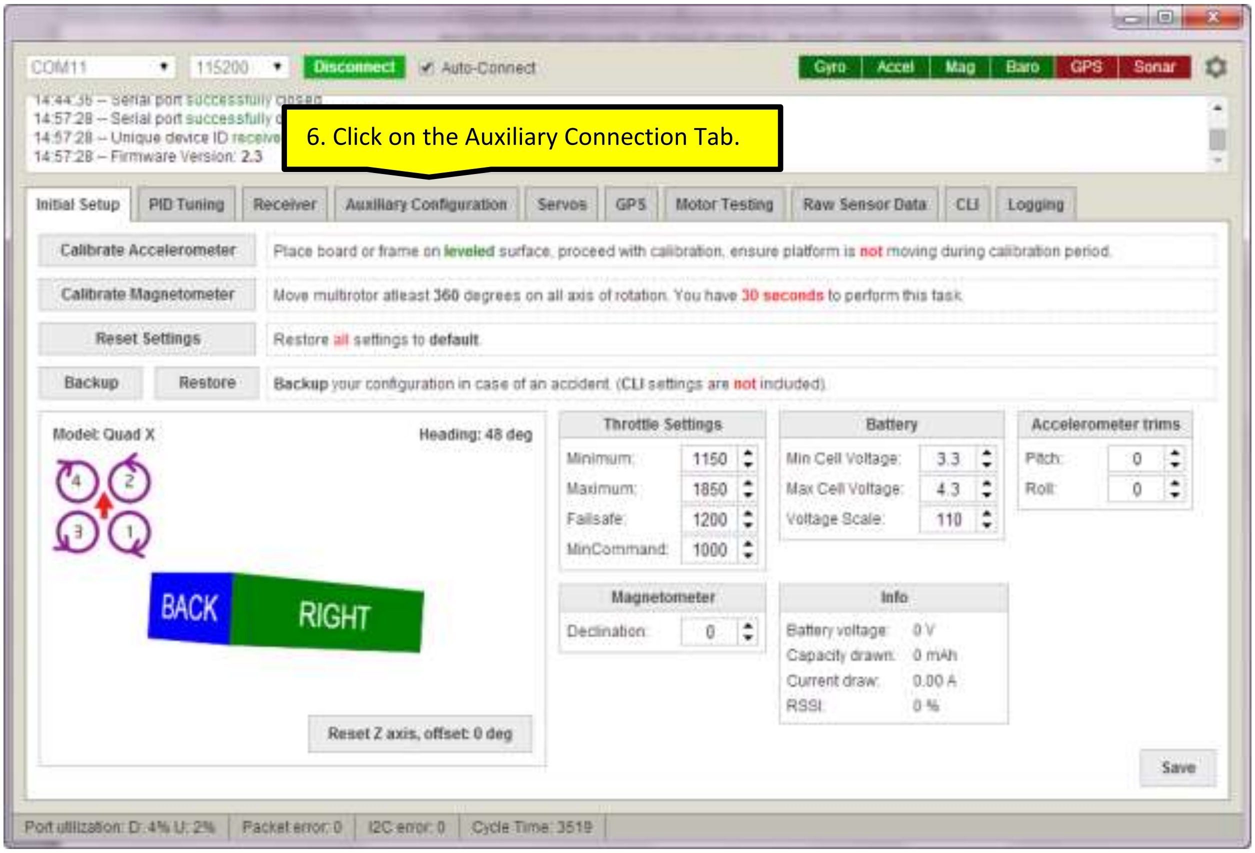


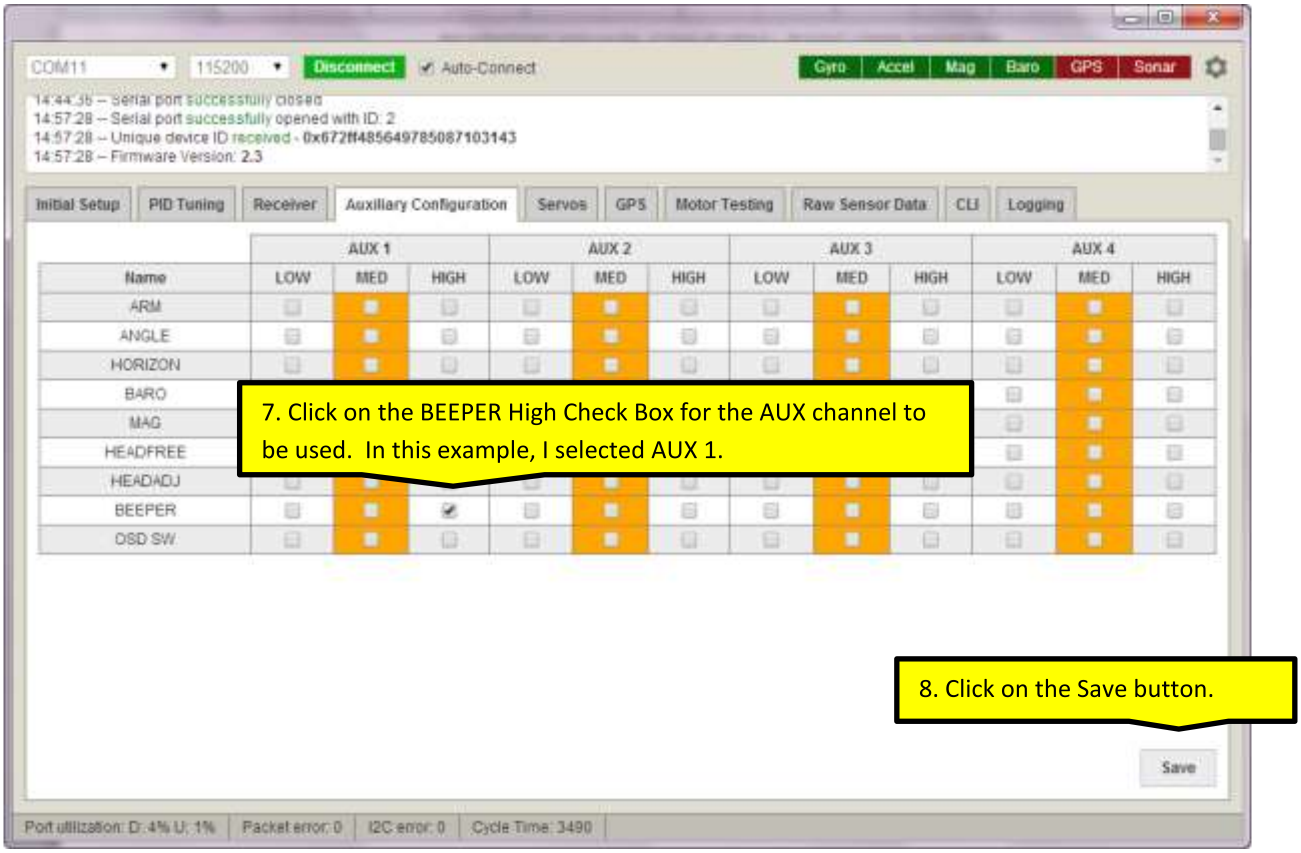
BEEP CONNECTION SETUP FOR A PIEZO BUZZER:

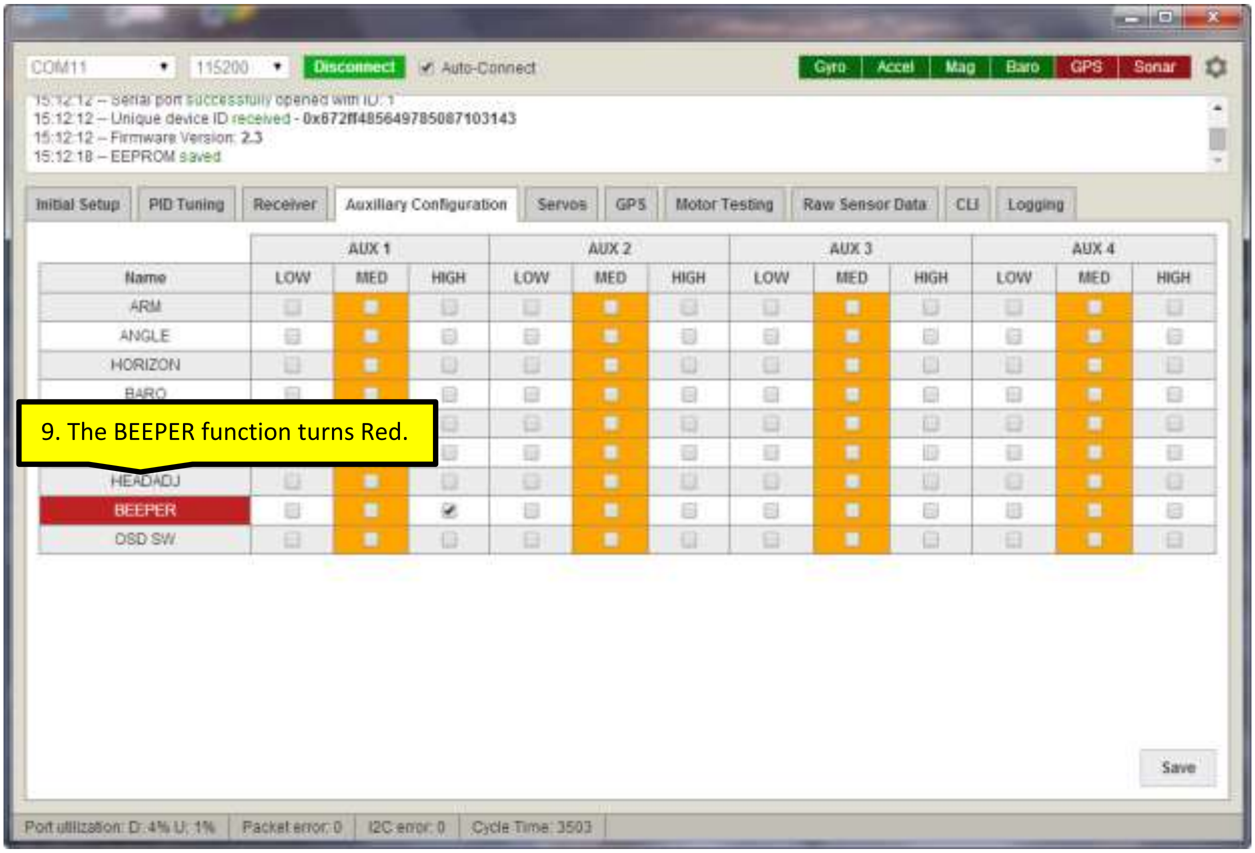
1. Setup the switch and channel on your transmitter that will activate the BEEP

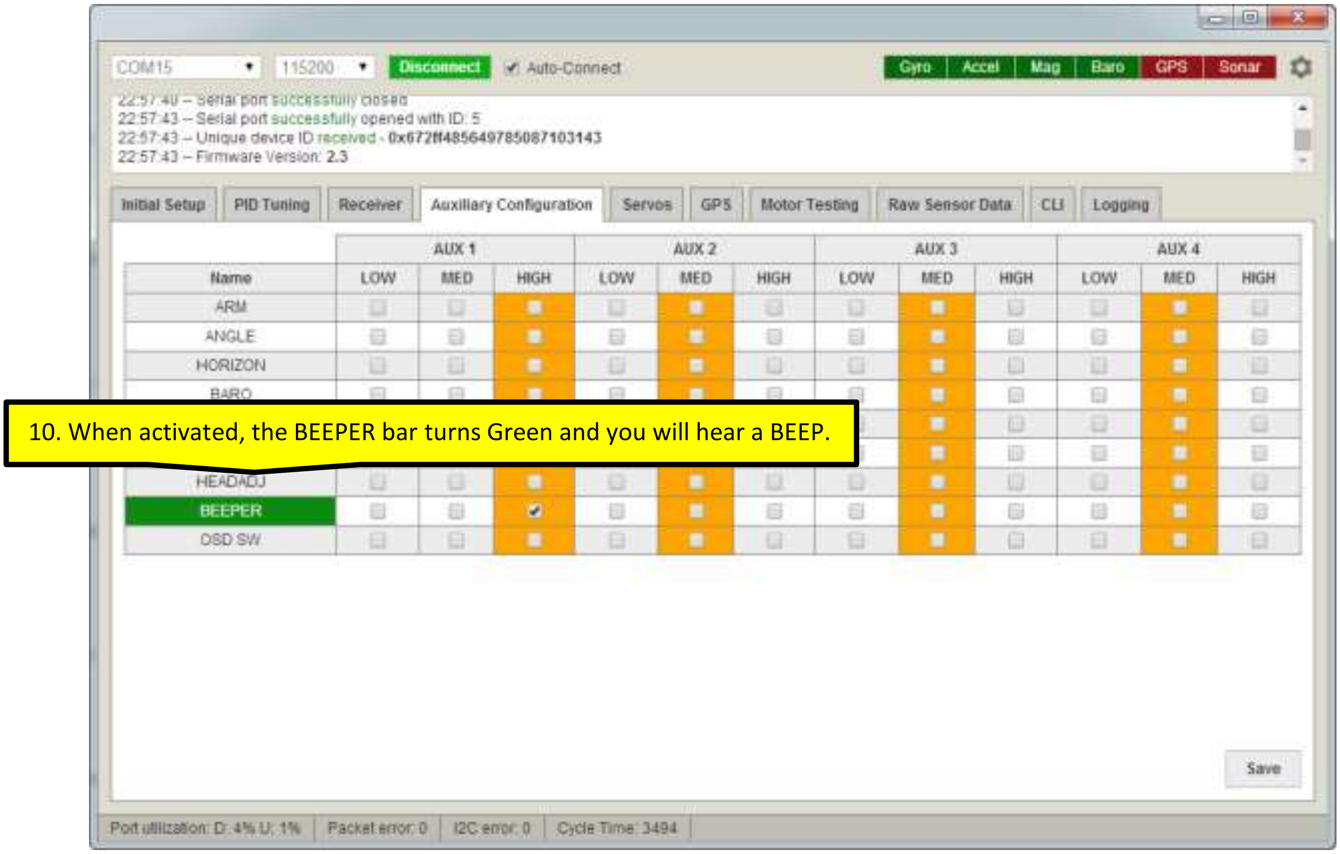
2. Attach the channel on your receiver to one of the AUX pin headers on the Flip 32+
3. Connect the Flip32+ to your pc or laptop.
4. Start the BaseFlight Configurator.




6. Click on the Auxiliary Connection Tab.
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task.
Reset Settings
Restore all settings to default.
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included).
Model: Quad X
Heading: 48 deg
BACK
RIGHT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Accelerometer trims
Pitch: 0
Roll: 0
Magnetometer
Declination: 0
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3519


COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
14:57:28 -- Serial port successfully opened with ID: 2
14:57:28 -- Unique device ID received - 0x672ff485649785087103143
14:57:28 -- Firmware Version: 2.3
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
AUX 1
AUX 2
AUX 3
AUX 4
Name
LOW
MED
HIGH
ARM
ANGLE
HORIZON
BARO
MAG
HEADFREE
HEADADJ
BEEPER
OSD SW
7. Click on the BEEPER High Check Box for the AUX channel to be used. In this example, I selected AUX 1.
8. Click on the Save button.
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3490


9. The BEEPER function turns Red.
COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
15:12:12 – Unique device ID received - 0x672ff485649785087103143
15:12:12 – Firmware Version: 2.3
15:12:18 – EEPROM saved
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
AUX 1
AUX 2
AUX 3
AUX 4
Name
LOW
MED
HIGH
ARM
ANGLE
HORIZON
BARO
HEADADJ
BEEPER
OSD SW
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3503


10. When activated, the BEEPER bar turns Green and you will hear a BEEP.

FLIGHT MODES:

ACRO

- Short for Acrobatic mode but sometimes called Manual mode
- Allows for flips and other fancy acrobatic type maneuvers
- Does not require a switch settings as it's the default mode
- Utilizes only the gyros to assist the pilot with handling interference from wind
- The pilot is in full control

ANGLE:

- Sometimes called Self Leveling mode or Auto Level mode
- Does not allow for lips or other fancy acrobatic type maneuvers
- Requires activation via a switch
- Utilizes gyros and accelerometers to keep the multirotor level as possible
- The pilot is in full control except when sticks are released

HORIZON:

- Combination of ACRO mode and ANGLE mode
- Allows for both auto/level flying and fancy acrobatic type maneuvers
- Requires activation via a switch
- When transmitter sticks are at center, ANGLE mode is enabled
- When transmitter sticks are towards their outer edges, ACRO mode is enabled

BARO:

- Sometimes called Altitude Hold mode
- Allows for level flight within a few meters up/down based on barometric pressure
- Requires activation via a switch when throttle is at 50% and multirotor is in the air

MAG:

- Sometimes called Heading Hold mode
- Locks the multirotor in the direction it was going before activating
- Requires activation via a switch when multirotor is flying straight with no yaw movement

HEADFREE:

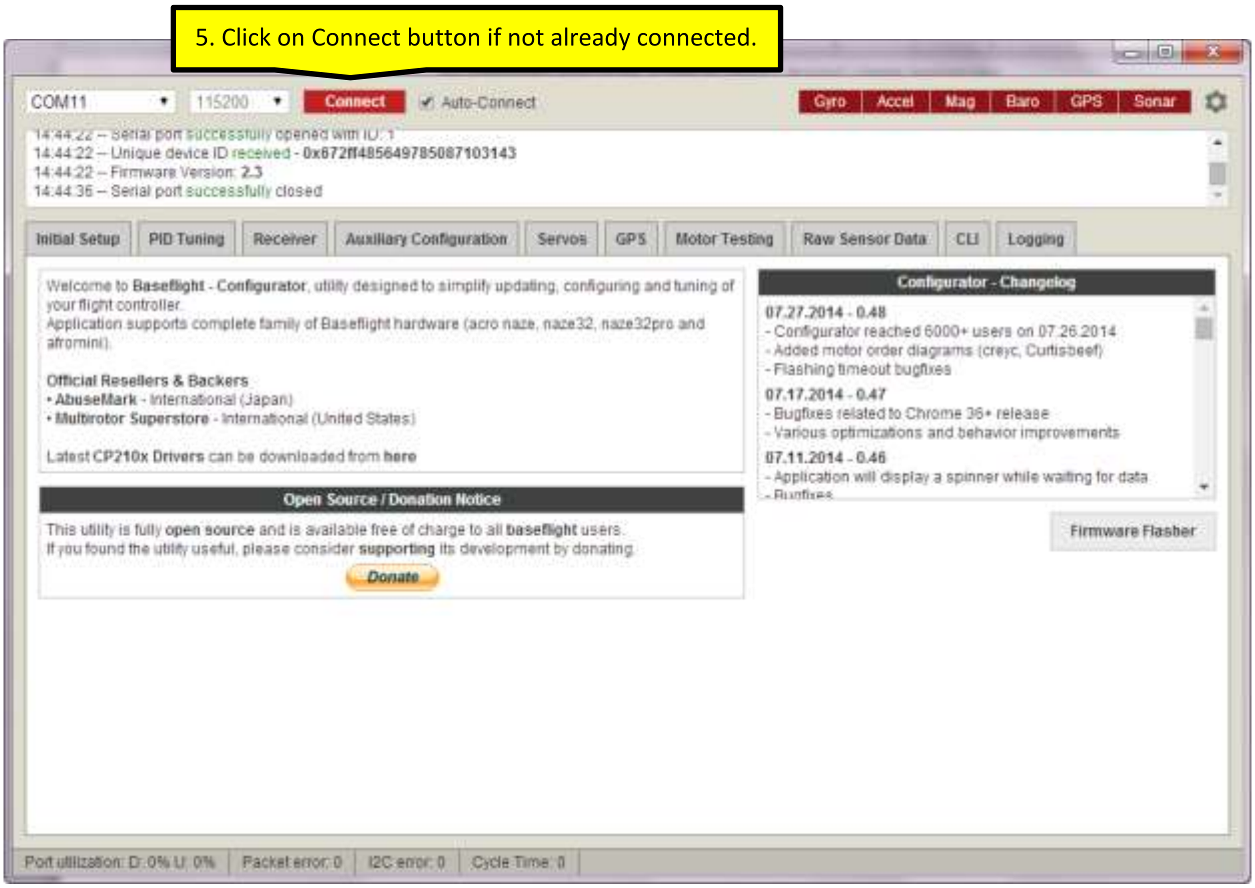
- Sometimes called Care Free mode or Super Simple mode
- Great for anyone that has issues with multirotor orientation
- Requires activation via a switch
- Uses the magnetometer (compass) and last known position
- Controls the multirotor left/right or forward/back direction regardless of orientation, i.e. the front of the multirotor is facing you instead of away from you
- Left/right stick movement will always move the multirotor left/right
- Forward/back stick movement will always move the multirotor forward/back
- Requires that the magnetometer (compass) be mounted in such a way to reduce magnetic interference from multirotor motors, ESCs or anything that can cause interference.

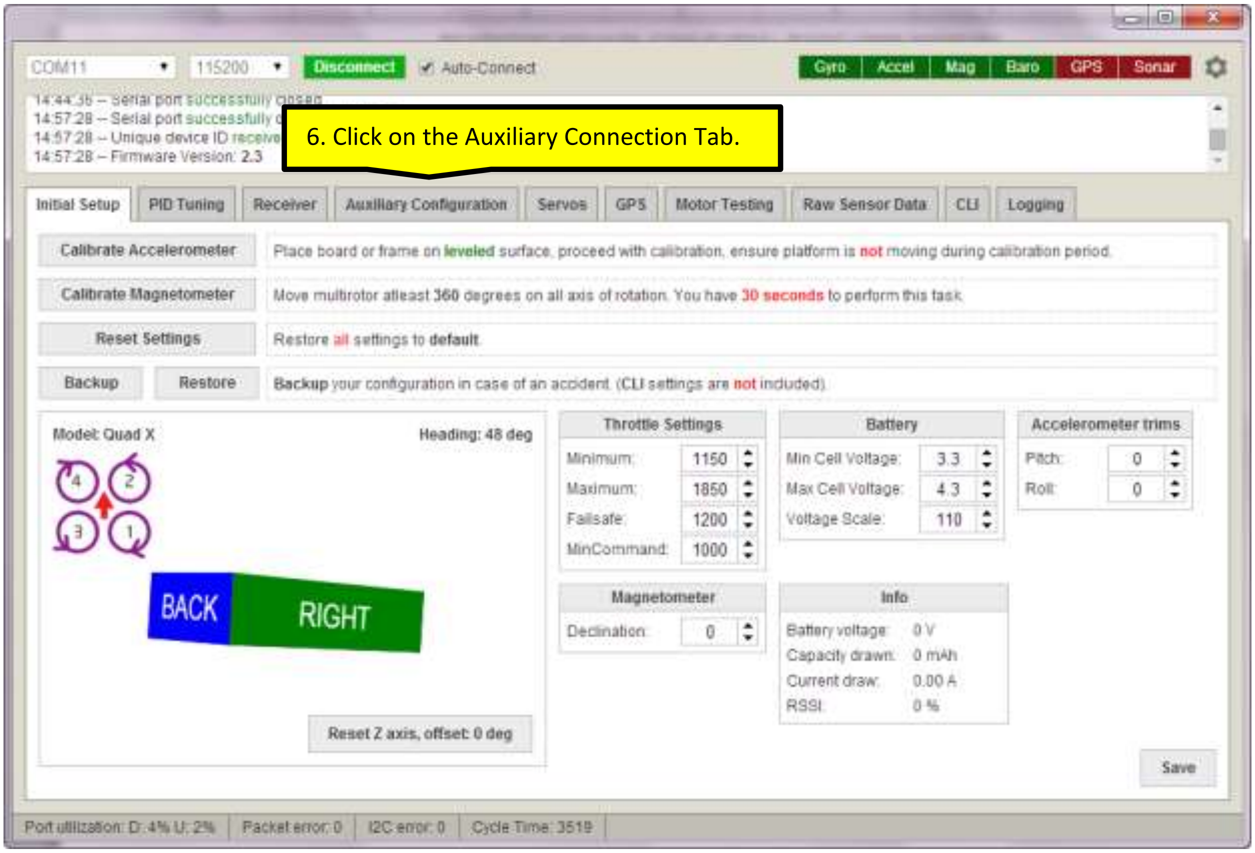
HEADADJ:

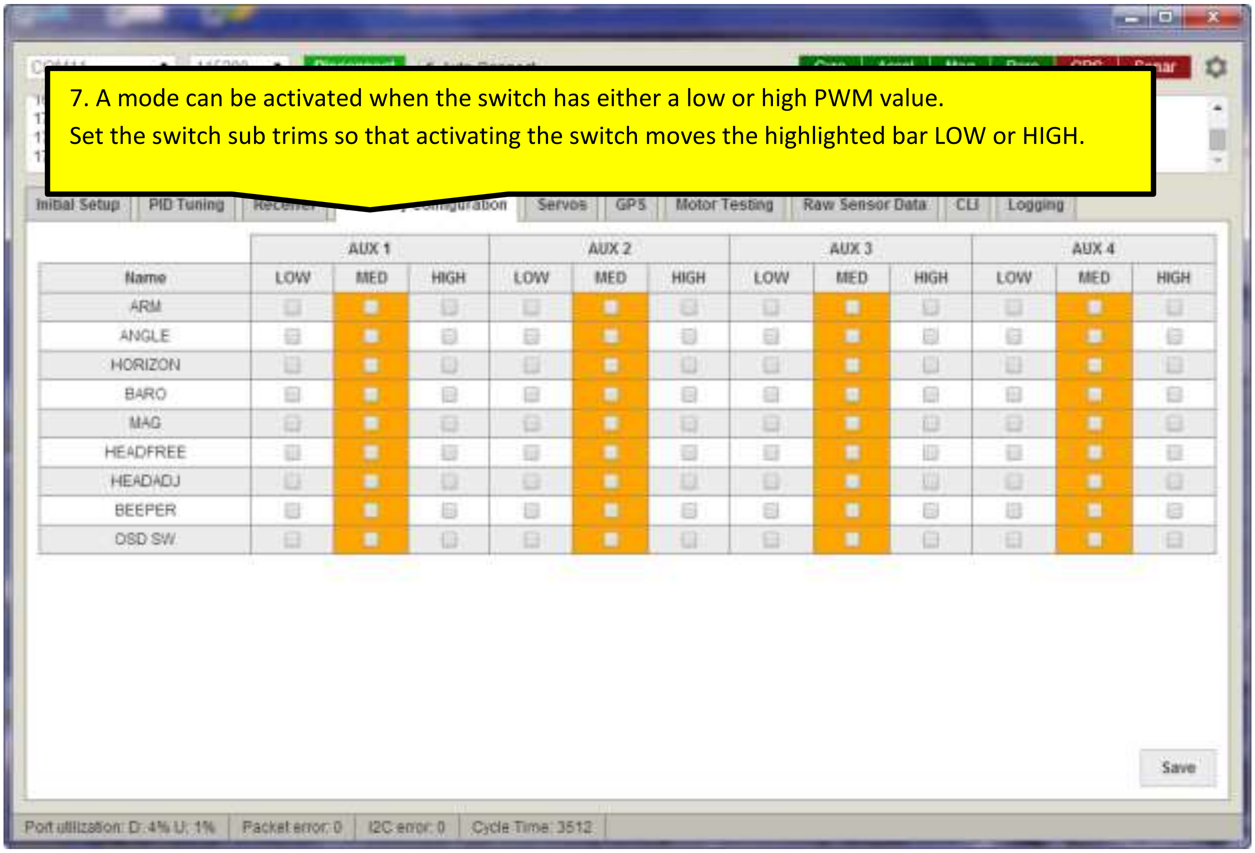
- Allows you to adjust the locked heading position while flying in MAG mode
- Requires activation via a switch

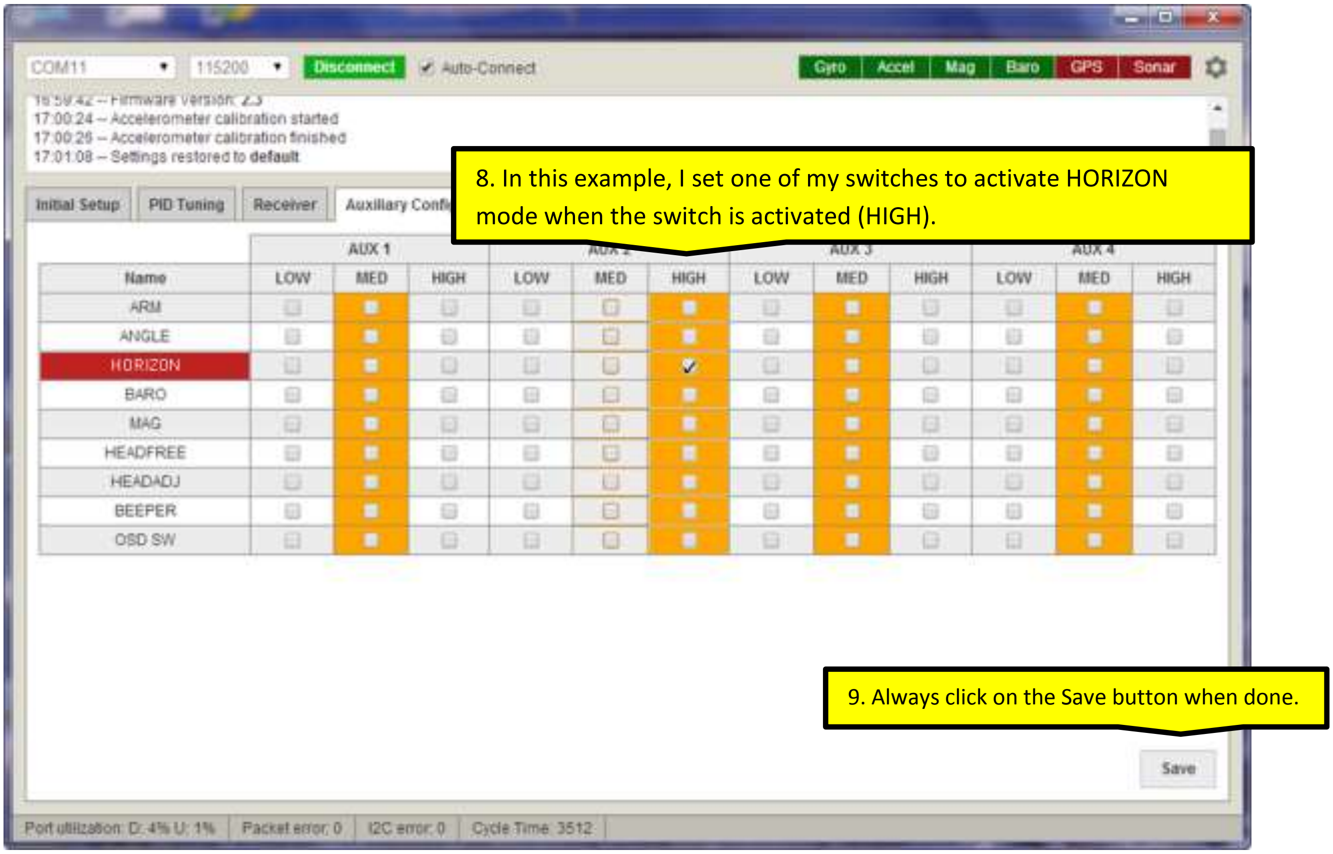
TWO POSITION SWITCHES FOR FLIGHT MODES:

1. Setup the switch and channel on your transmitter that will activate the mode you want
2. Attach the channel on your receiver to one of the AUX pin headers on the Flip 32+
3. Connect the Flip32+ to your pc or laptop.
4. Start the BaseFlight Configurator.



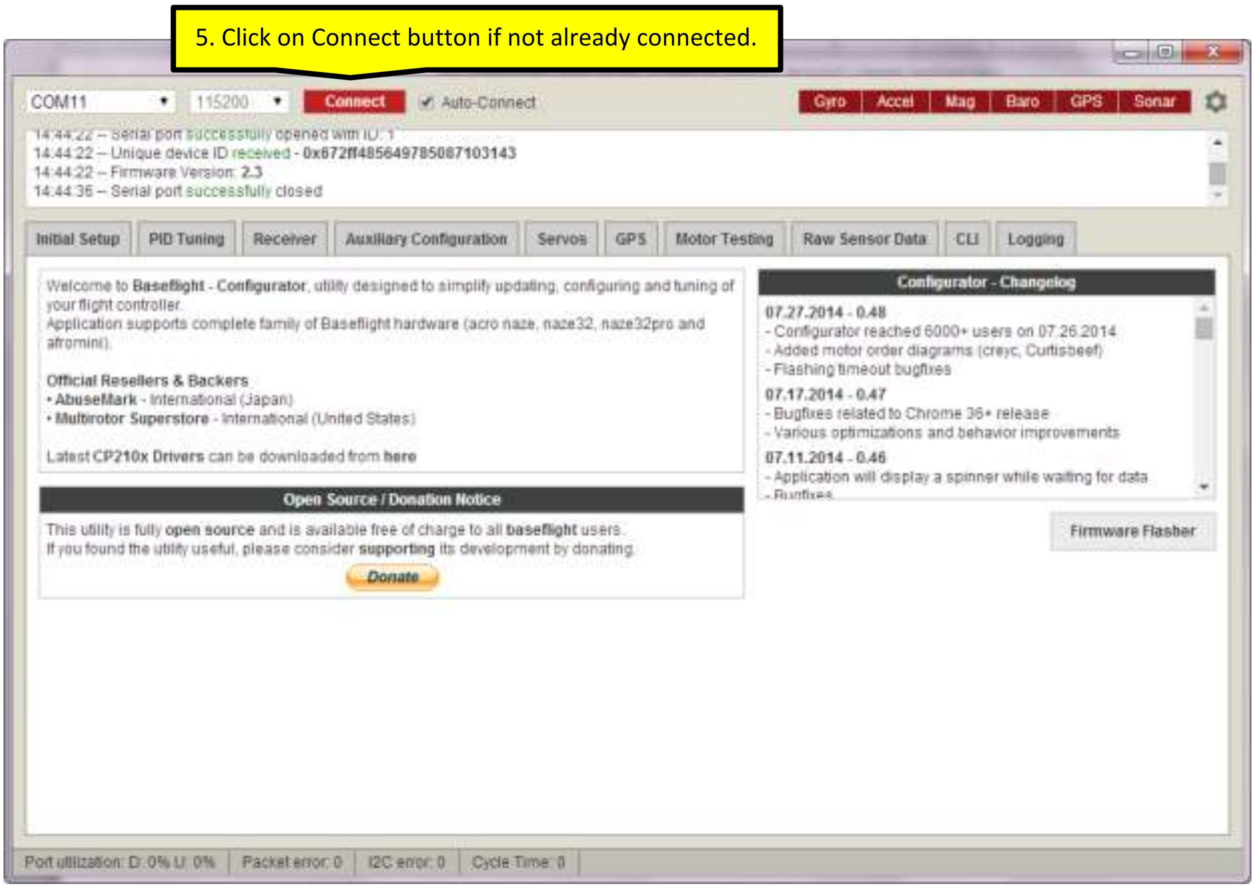

6. Click on the Auxiliary Connection Tab.
COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
14:57:28 – Serial port successfully
14:57:28 – Unique device ID receive
14:57:28 – Firmware Version: 2.3
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task.
Reset Settings
Restore all settings to default.
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included).
Model: Quad X
Heading: 48 deg
BACK
RIGHT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Accelerometer trims
Pitch: 0
Roll: 0
Magnetometer
Declination: 0
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3519

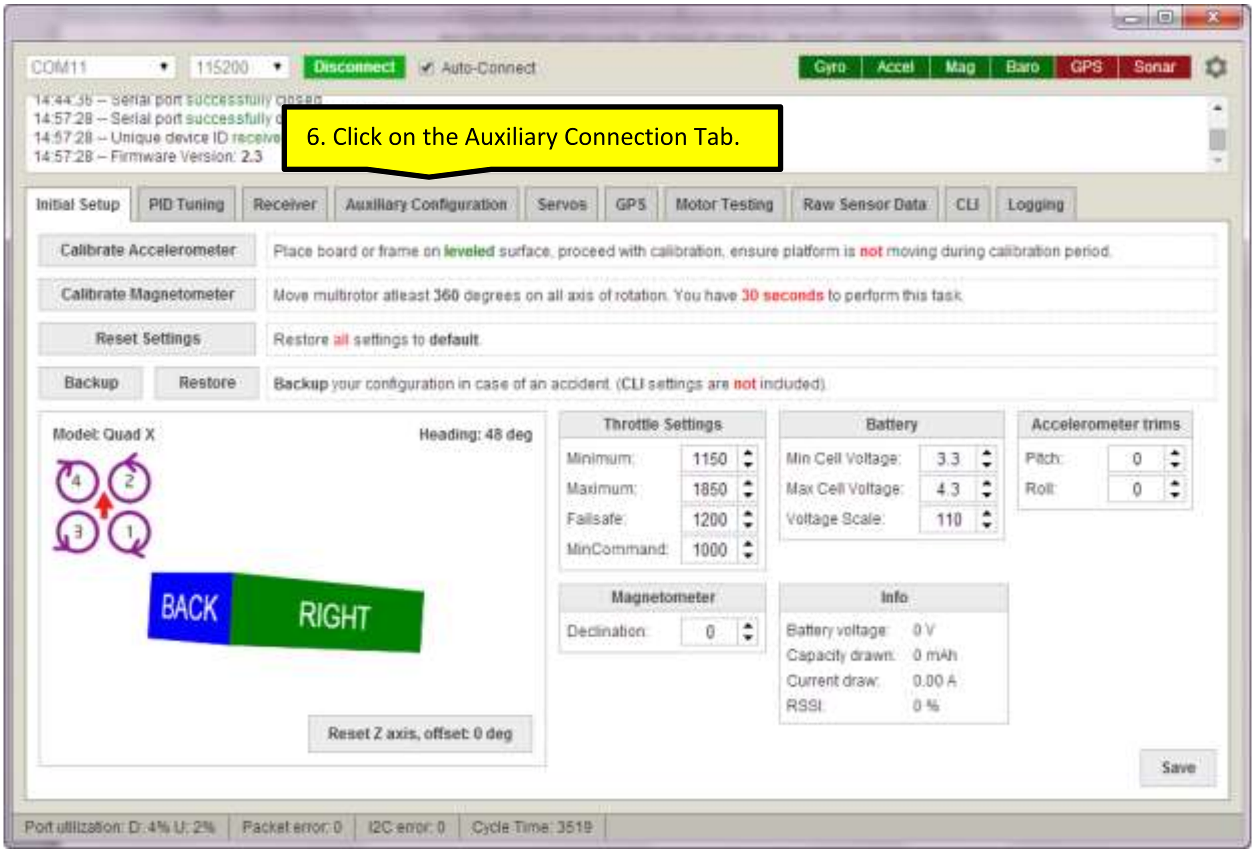

7. A mode can be activated when the switch has either a low or high PWM value.
Set the switch sub trims so that activating the switch moves the highlighted bar LOW or HIGH.
Initial Setup
PID Tuning
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
AUX 1
AUX 2
AUX 3
AUX 4
Name
LOW
MED
HIGH
ARM
ANGLE
HORIZON
BARO
MAG
HEADFREE
HEADADJ
BEEPER
OSD SW
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3512

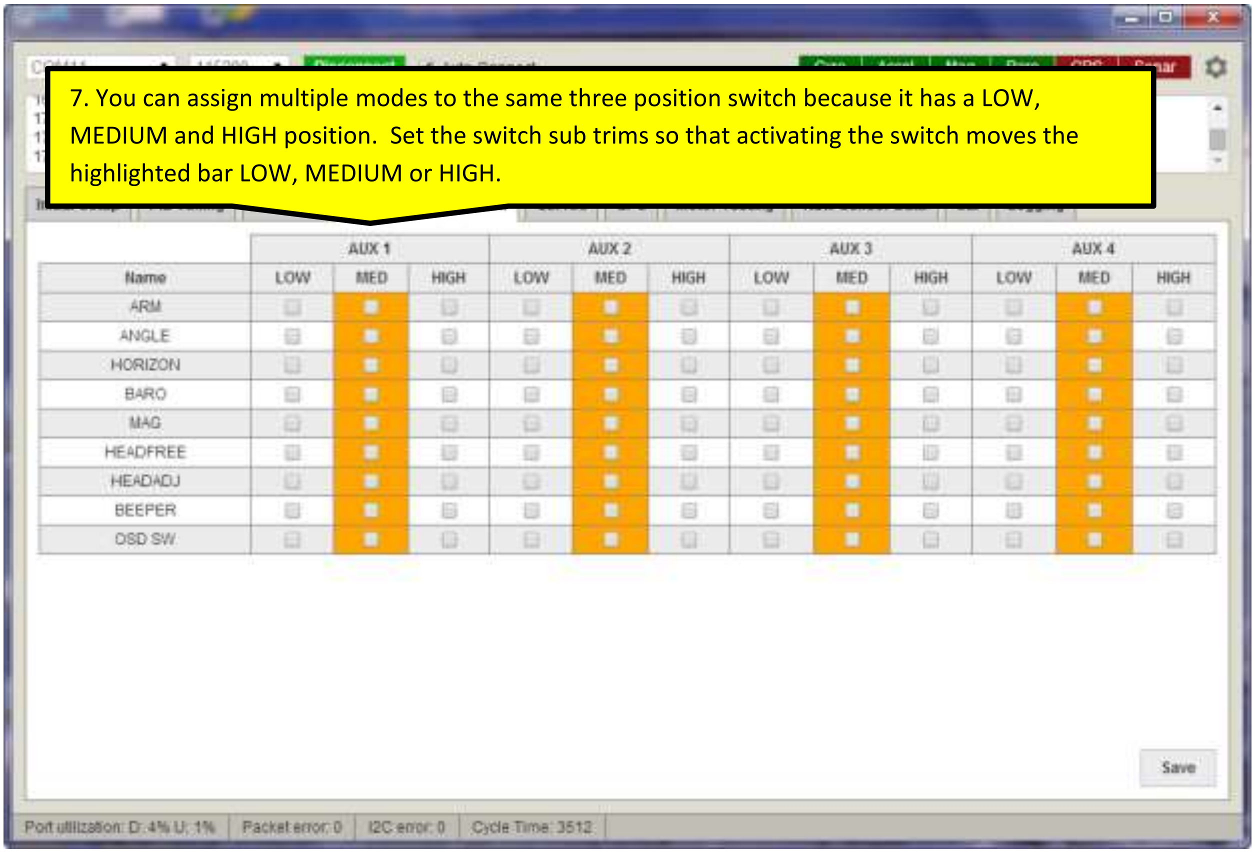

COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
17:00:24 -- Accelerometer calibration started
17:00:26 -- Accelerometer calibration finished
17:01:08 -- Settings restored to default
Initial Setup
PID Tuning
Receiver
AUX 1
Name
LOW
MED
HIGH
ARM
ANGLE
HORIZON
BARO
MAG
HEADFREE
HEADADJ
BEEPER
OSD SW
8. In this example, I set one of my switches to activate HORIZON mode when the switch is activated (HIGH).
9. Always click on the Save button when done.
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3512

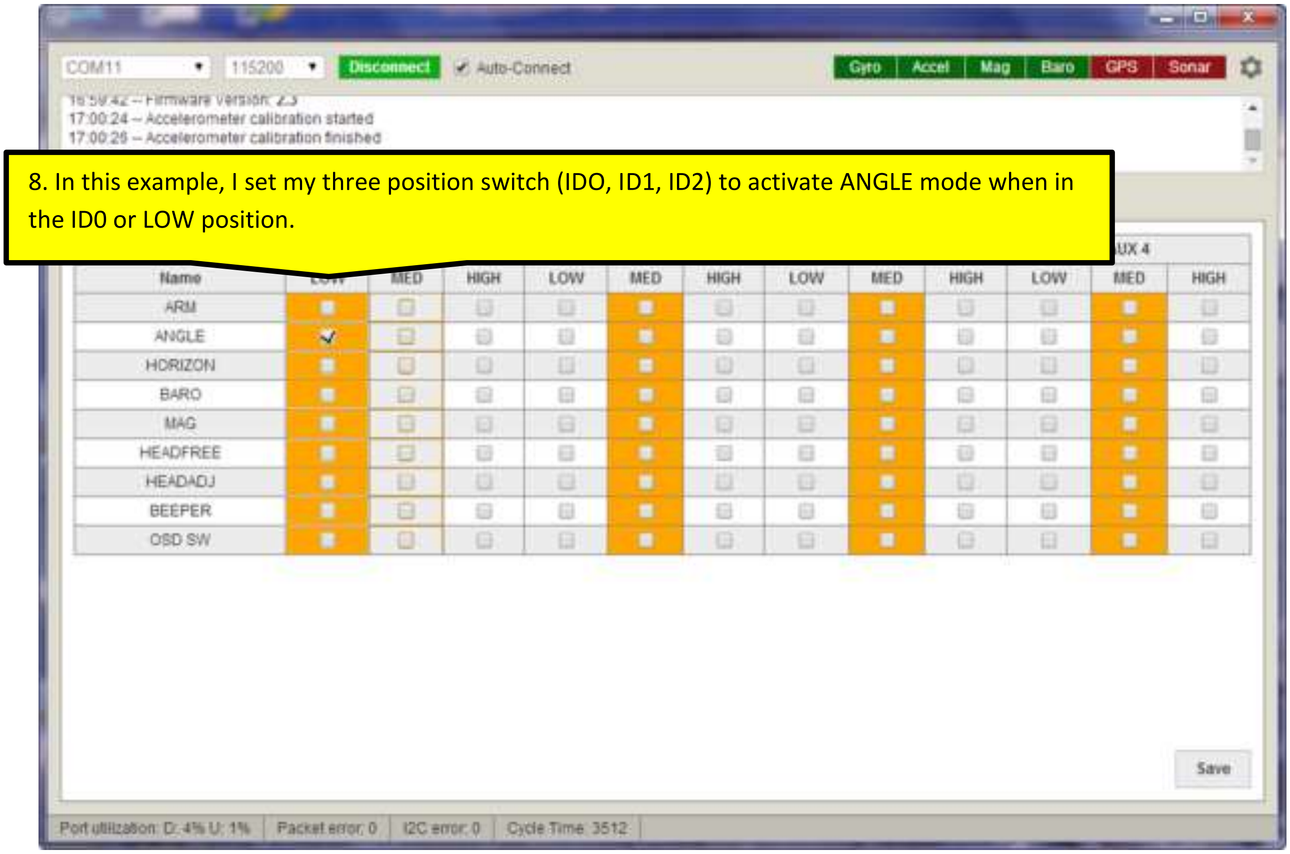
THREE POSITION SWITCHES FOR FLIGHT MODES:

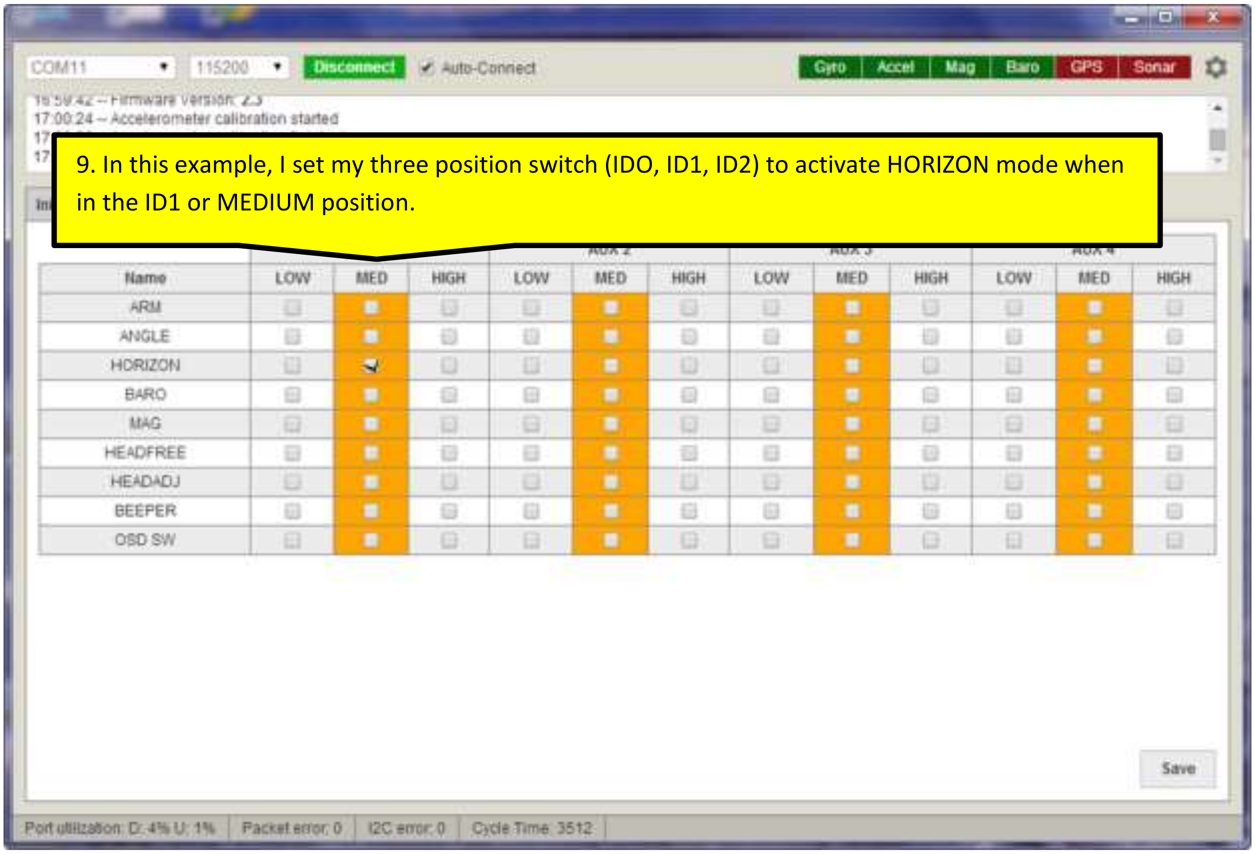
1. Setup the switch and channel on your transmitter that will activate the mode you want
2. Attach the channel on your receiver to one of the AUX pin headers on the Flip 32+
3. Connect the Flip32+ to your pc or laptop.
4. Start the BaseFlight Configurator.

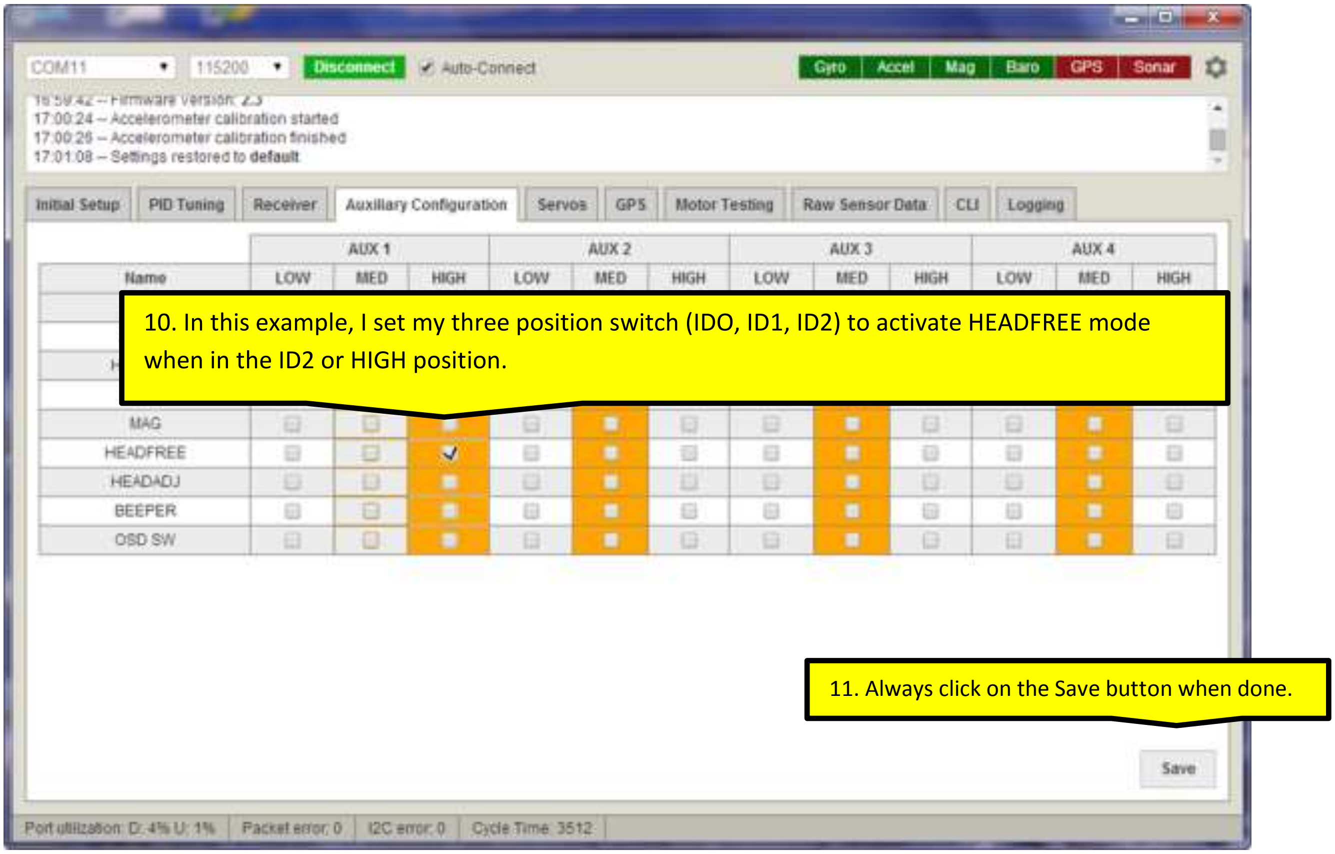



COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
6. Click on the Auxiliary Connection Tab.
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task.
Reset Settings
Restore all settings to default.
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included)
Model: Quad X
Heading: 48 deg
BACK
RIGHT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Accelerometer trims
Pitch: 0
Roll: 0
Magnetometer
Declination: 0
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3519


7. You can assign multiple modes to the same three position switch because it has a LOW, MEDIUM and HIGH position. Set the switch sub trims so that activating the switch moves the highlighted bar LOW, MEDIUM or HIGH.
AUX 1
AUX 2
AUX 3
AUX 4
Name
LOW
MED
HIGH
ARM
ANGLE
HORIZON
BARO
MAG
HEADFREE
HEADADJ
BEEPER
OSD SW
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3512


COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
17:00:24 -- Accelerometer calibration started
17:00:26 -- Accelerometer calibration finished
8. In this example, I set my three position switch (IDO, ID1, ID2) to activate ANGLE mode when in the ID0 or LOW position.
Name
MED
HIGH
LOW
ARM
ANGLE
HORIZON
BARO
MAG
HEADFREE
HEADADJ
BEEPER
OSD SW
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3512


COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
17:00:24 -- Accelerometer calibration started
9. In this example, I set my three position switch (IDO, ID1, ID2) to activate HORIZON mode when in the ID1 or MEDIUM position.
Name
LOW
MED
HIGH
ARM
ANGLE
HORIZON
BARO
MAG
HEADFREE
HEADADJ
BEEPER
OSD SW
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3512

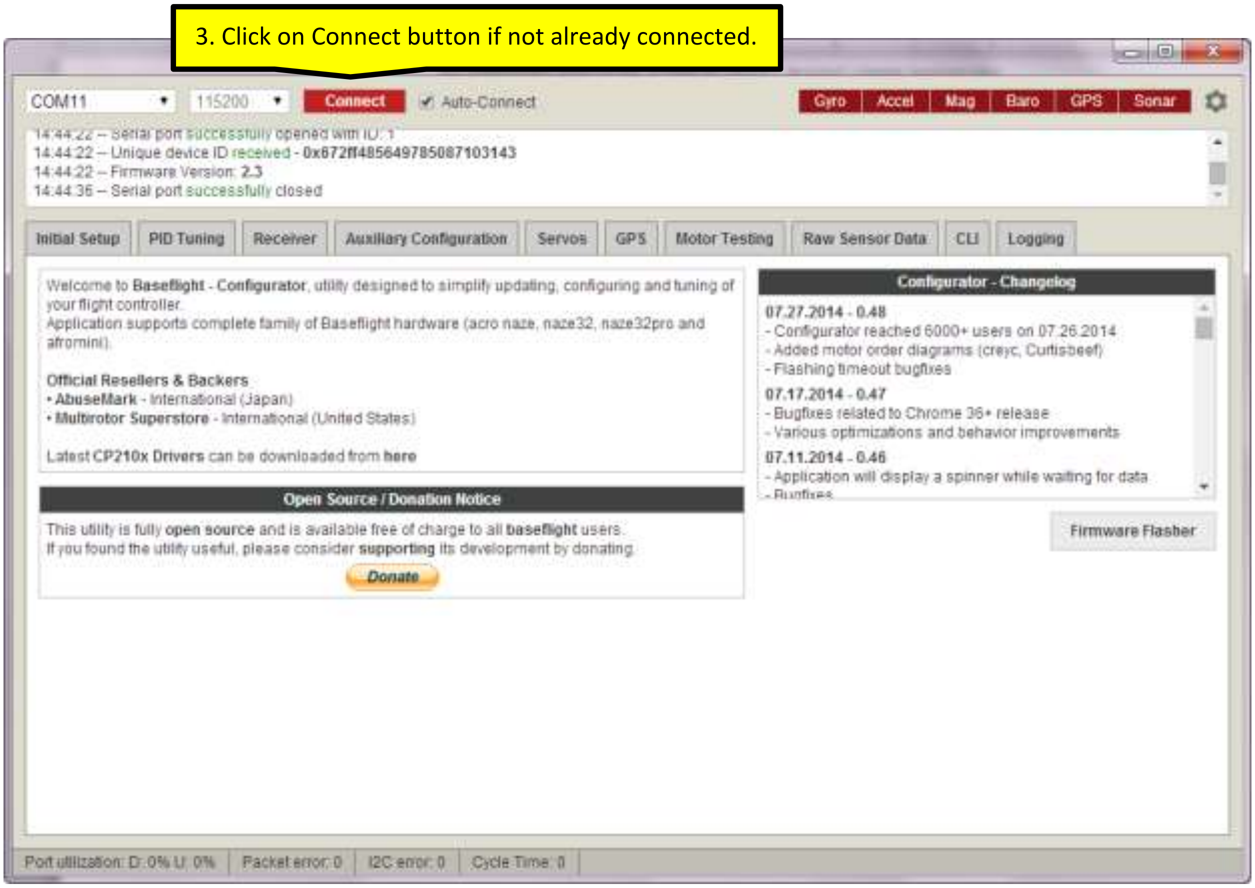

COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
17:00:24 – Accelerometer calibration started
17:00:26 – Accelerometer calibration finished
17:01:08 – Settings restored to default
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
AUX 1
AUX 2
AUX 3
AUX 4
Name
LOW
MED
HIGH
MAG
HEADFREE
HEADADJ
BEEPER
OSD SW
10. In this example, I set my three position switch (IDO, ID1, ID2) to activate HEADFREE mode when in the ID2 or HIGH position.
11. Always click on the Save button when done.
Save
Port utilization: D: 4% U: 1%
Packet error: 0
I2C error: 0
Cycle Time: 3512

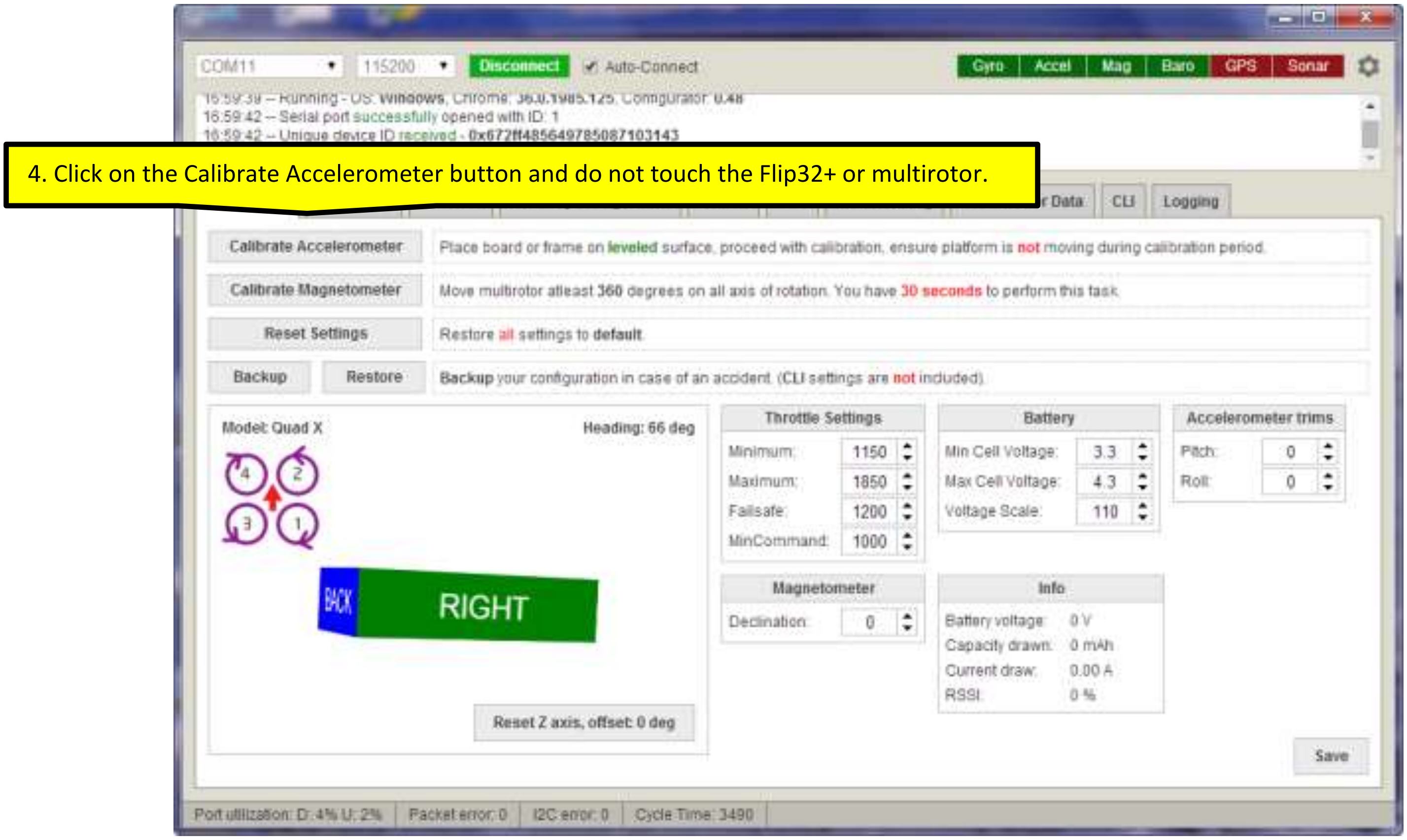
ACCELEROMETER CALIBRATION USING THE GOOGLE CHROME BASEFLIGHT CONFIGURATOR:

ReadyToFlyQuads.COM will have done the calibration for you but accelerometers are very sensitive to vibrations. In order to avoid any accelerometer issues caused by the vibrations received in transit, it is considered best practice to re-calibrate the accelerometers when you receive the Flip32+.

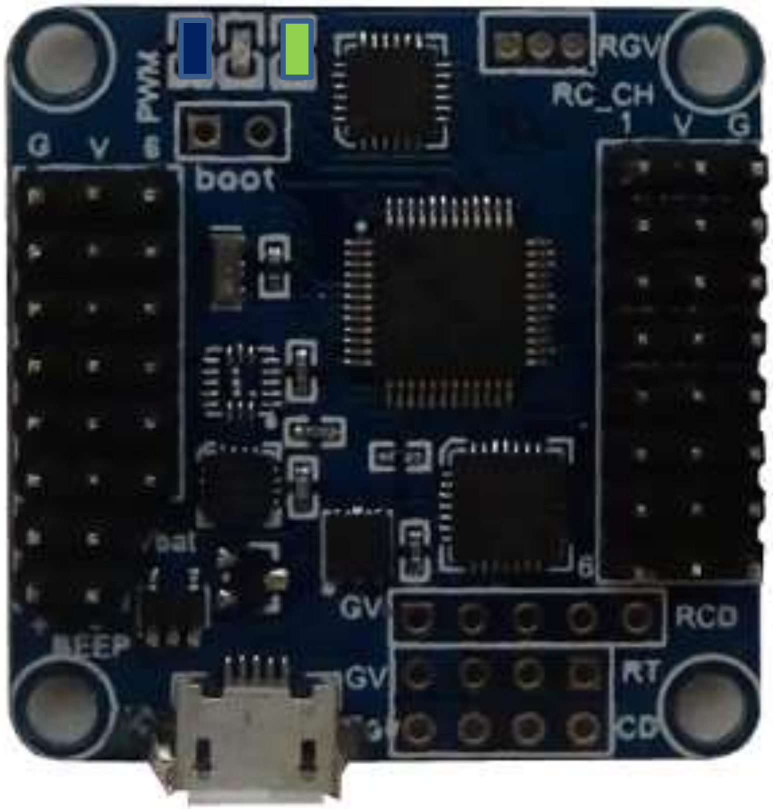
It is imperative that the multirotor be kept level and motionless while the calibration process is performed.

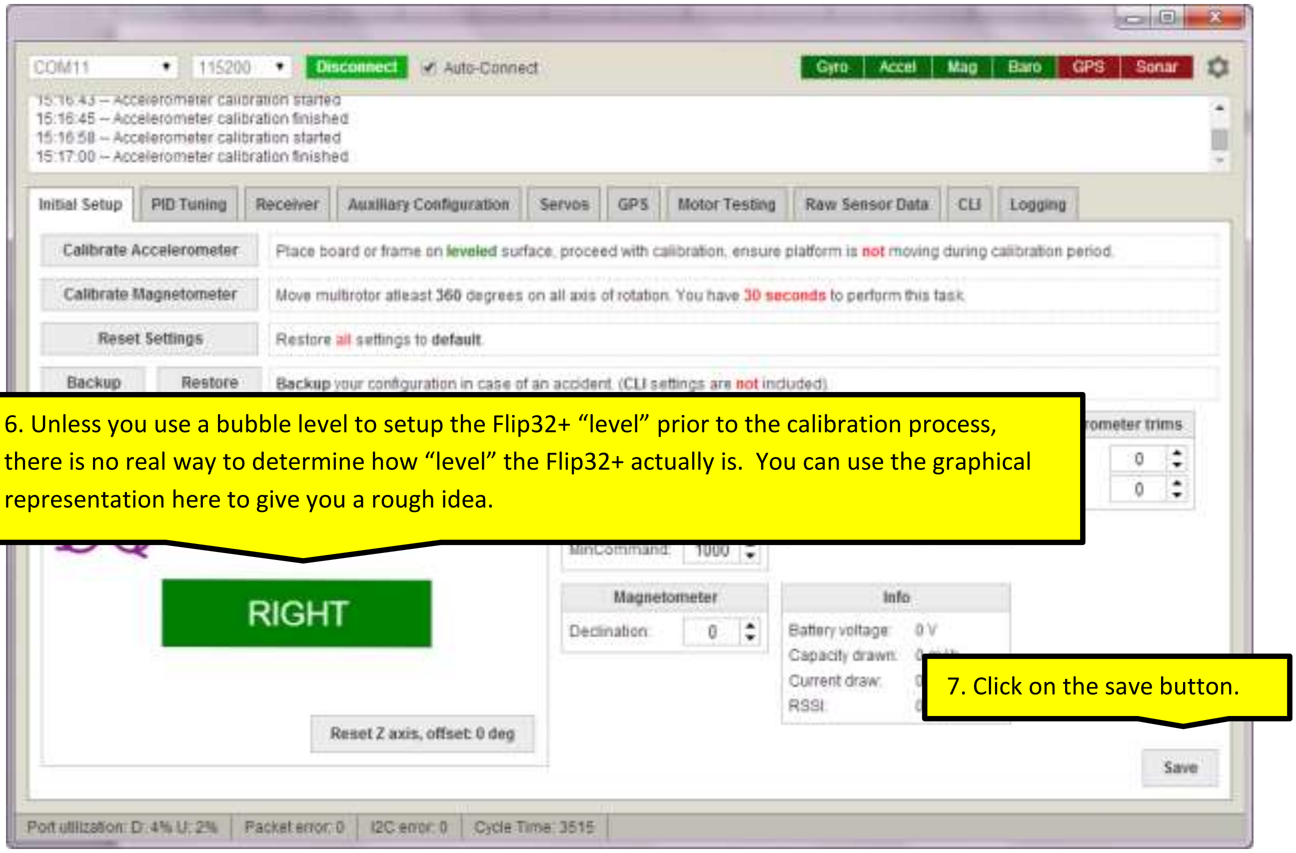
1. Connect the Flip32+ to your pc or laptop
2. Start the BaseFlight Configurator.




4. Click on the Calibrate Accelerometer button and do not touch the Flip32+ or multirotor.
COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
16:59:42 -- Serial port successfully opened with ID: 1
r Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task.
Reset Settings
Restore all settings to default.
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included).
Model: Quad X
Heading: 66 deg
BACK
RIGHT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Accelerometer trims
Pitch: 0
Roll: 0
Magnetometer
Declination: 0
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3490

5. The Green LED will turn for about 3 – 5 seconds then turn off.




COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
15:16:45 -- Accelerometer calibration finished
15:16:58 -- Accelerometer calibration started
15:17:00 -- Accelerometer calibration finished
Initial Setup
PID Tuning
Receiver
Auxiliary Configuration
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Accelerometer
Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving during calibration period.
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task
Reset Settings
Restore all settings to default
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included)
6. Unless you use a bubble level to setup the Flip32+ “level” prior to the calibration process, there is no real way to determine how “level” the Flip32+ actually is. You can use the graphical representation here to give you a rough idea.
RIGHT
Reset Z axis, offset: 0 deg
Magnetometer
Declination
Info
Battery voltage
Capacity drawn
Current draw
RSSI
7. Click on the save button.
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3515

ACCELEROMETER CALIBRATION USING THE TRANSMITTER STICKS:

1. Power on your transmitter
2. Power on the Flip32+
3. Ensure that the Flip32+/multirotor is level and motionless
4. Ensure that the Flip32+ is not armed



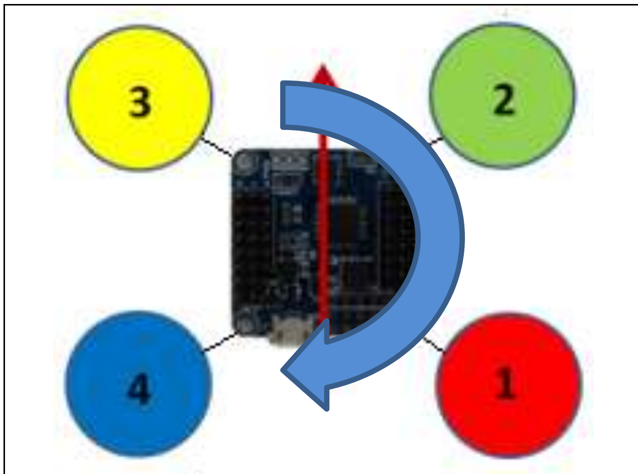
5. The Green LED will turn for about 3 – 5 seconds then turn off.
6. You're done!



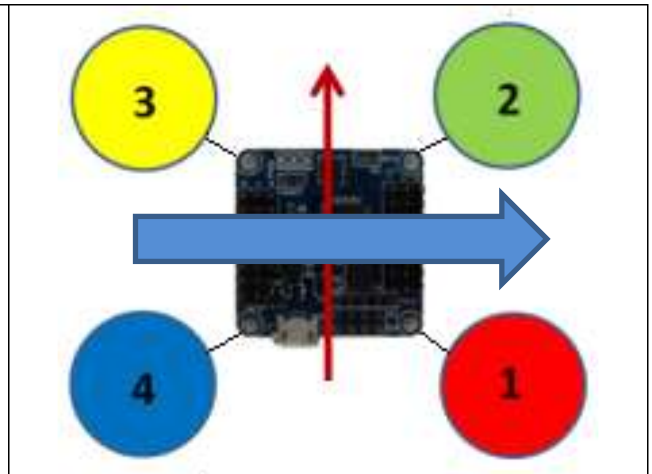
THE MAGNETOMETER (COMPASS) CALIBRATION DANCE:

The dance is basically a series of movements that moves the Flip32+ along its X, Y and Z axis. This gives the Flip32+ a chance to obtain magnetic reference points so that it can best determine where magnetic north is. During the calibration dance, keep the multirotor flat as if it were hovering in the air.

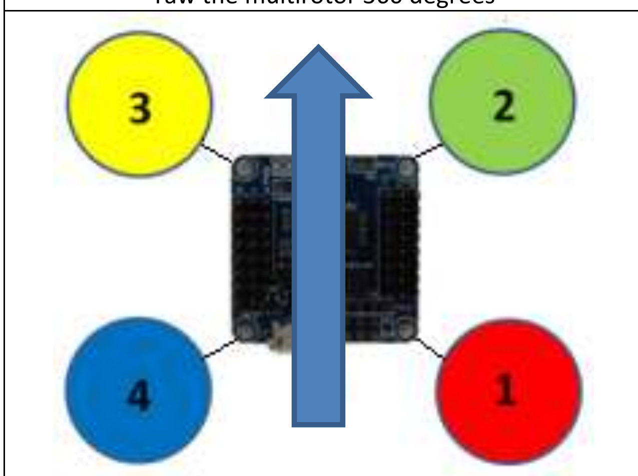
Once started, you have only 30 seconds to complete all of the dance steps.



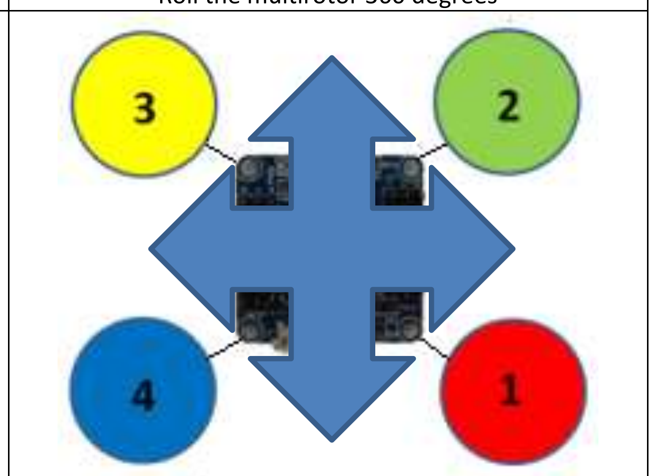
Yaw the multirotor 360 degrees



Roll the multirotor 360 degrees



Pitch the multirotor 360 degrees

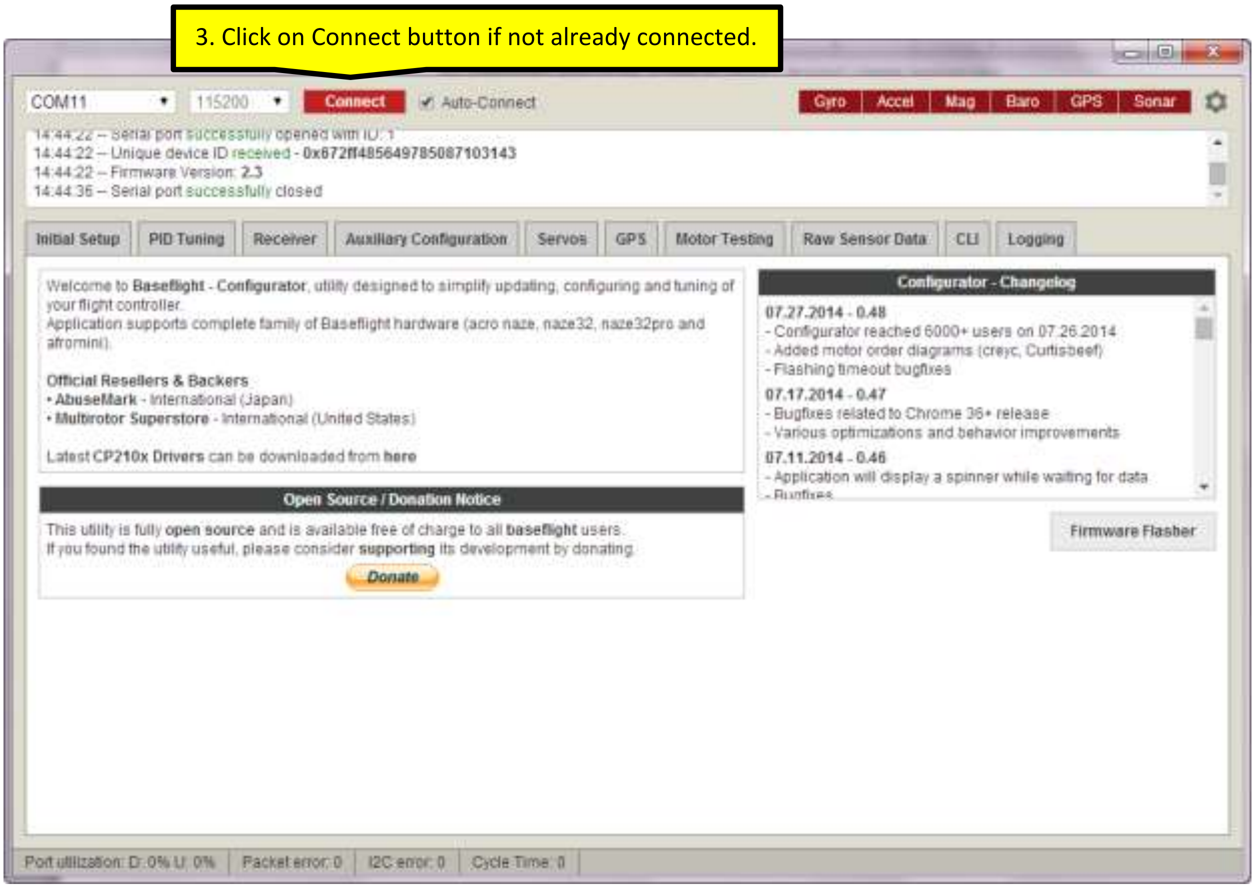


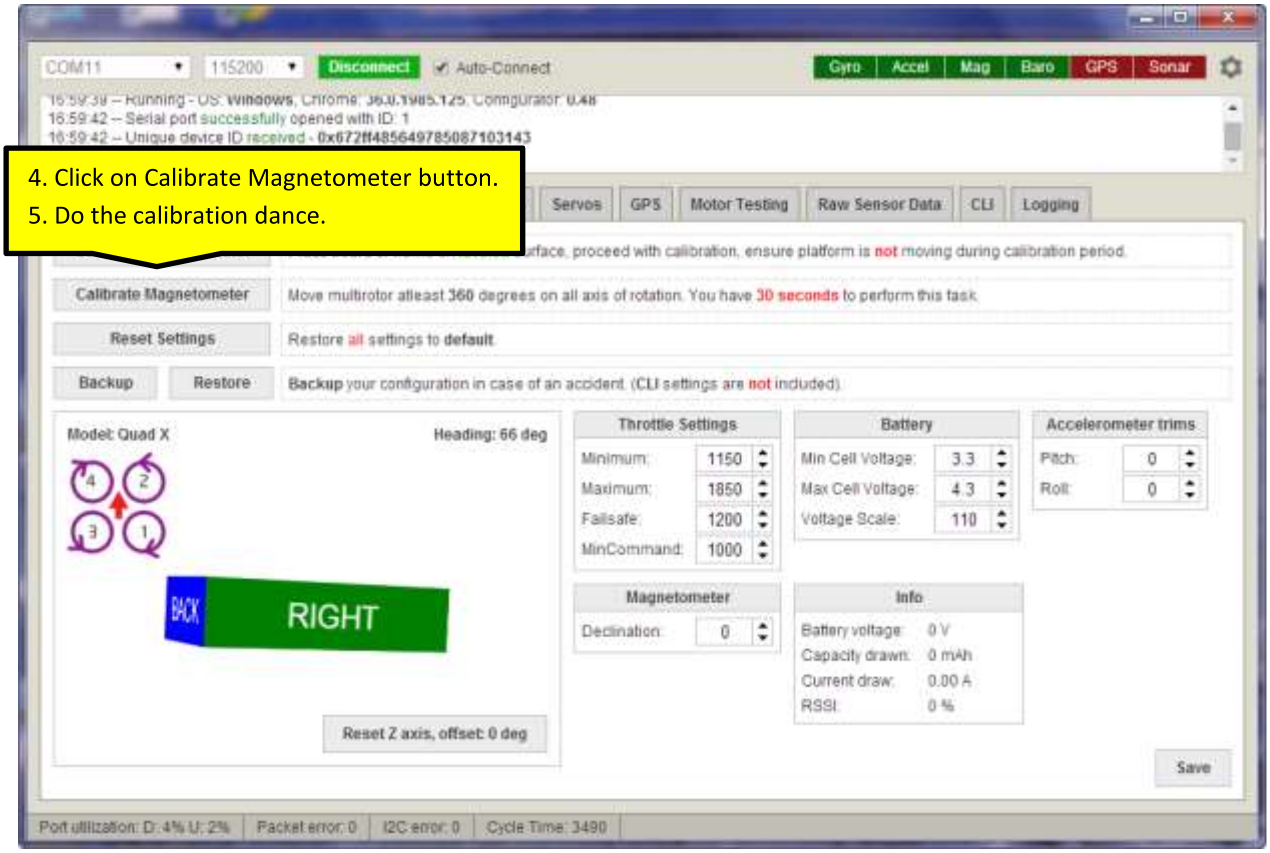
Free style! Go crazy in any and all directions!

MAGNETOMETER (COMPASS) CALIBRATION USING THE GOOGLE CHROME BASEFLIGHT CONFIGURATOR:

It is best to use a Blue Tooth connection when using the Google Chrome BaseFlight Configurator because a USB cable will be in the way as you rotate the Flip32+. If a Blue Tooth connection is not available, you can use the transmitter stick method instead.

1. Connect the Flip32+ to your pc or laptop via a Blue Tooth connection.
2. Start the BaseFlight Configurator.



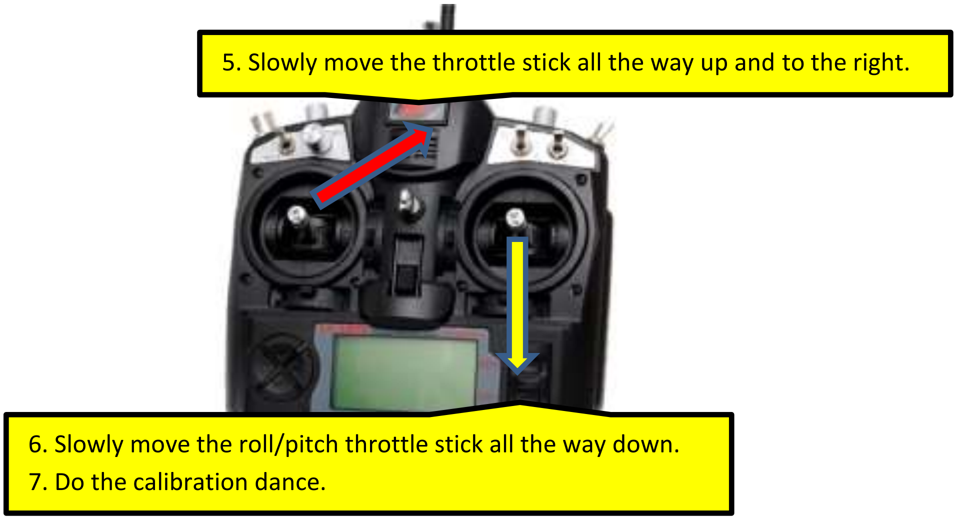

COM11
115200
Disconnect
Auto-Connect
Gyro
Accel
Mag
Baro
GPS
Sonar
16:59:42 -- Serial port successfully opened with ID: 1
4. Click on Calibrate Magnetometer button.
5. Do the calibration dance.
Servos
GPS
Motor Testing
Raw Sensor Data
CLI
Logging
Calibrate Magnetometer
Move multirotor atleast 360 degrees on all axis of rotation. You have 30 seconds to perform this task
Reset Settings
Restore all settings to default
Backup
Restore
Backup your configuration in case of an accident. (CLI settings are not included)
Model: Quad X
Heading: 66 deg
RIGHT
Reset Z axis, offset: 0 deg
Throttle Settings
Minimum: 1150
Maximum: 1850
Failsafe: 1200
MinCommand: 1000
Magnetometer
Declination: 0
Battery
Min Cell Voltage: 3.3
Max Cell Voltage: 4.3
Voltage Scale: 110
Info
Battery voltage: 0 V
Capacity drawn: 0 mAh
Current draw: 0.00 A
RSSI: 0 %
Accelerometer trims
Pitch: 0
Roll: 0
Save
Port utilization: D: 4% U: 2%
Packet error: 0
I2C error: 0
Cycle Time: 3490

6. The Green LED will blink rapidly for 30 seconds while you dance then turn off.
7. You’re done!



MAGNETOMETER (COMPASS) CALIBRATION USING THE TRANSMITTER STICKS:

1. Power on your transmitter
2. Power on the Flip32+
3. Ensure that the Flip32+/multirotor is level and motionless
4. Ensure that the Flip32+ is not armed



8. The Green LED will blink rapidly for 30 seconds while you dance then turn off.
9. You're done!

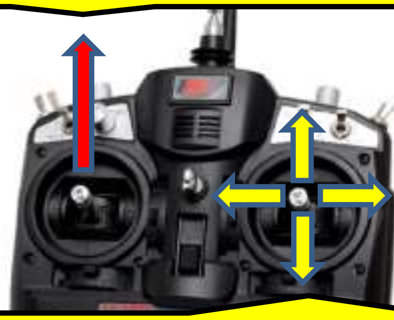


IN FLIGHT ACCELEROMETER TRIMMING:

If the ANGLE mode (Self Leveling mode or Auto Level mode) is not performing the way you want it to, the accelerometers can be tweaked in flight using the transmitter sticks. It is probably best to perform this process on a calm or light windy day.

1. Enable ANGLE mode on your transmitter
2. Arm the multirotor, lift off and try to maintain a level hover/flight
3. Take notice of what sticks (roll, pitch or yaw) you need to move in order to maintain a level hover/flight
4. Land and disarm the multirotor

5. Slowly move the throttle stick all the way up.



6. For each direction that you wish to tweak quickly move (bang) the stick in that direction and then back to center repeatedly about 10 times.

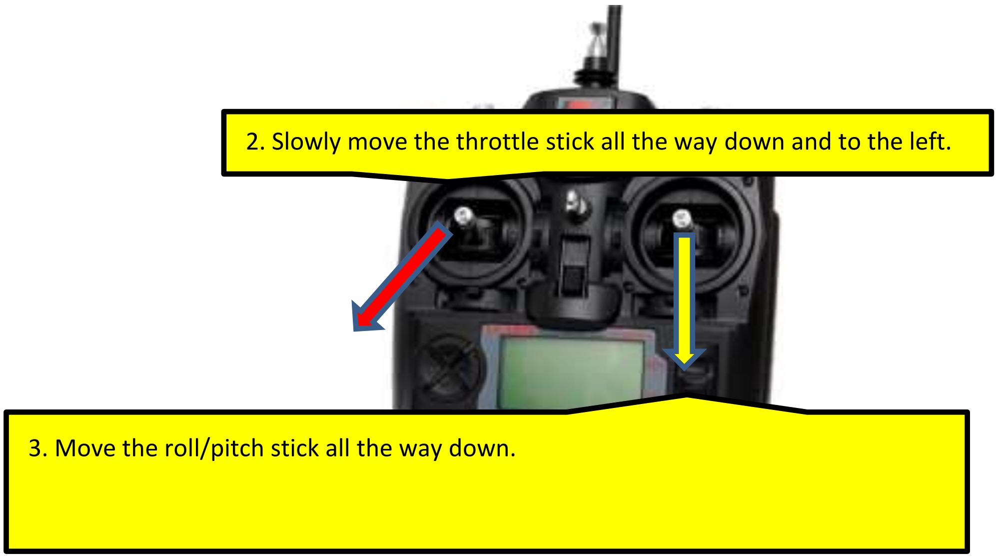
7. Bring the throttle stick all the way back down when done.

Once you have finished making adjustments in steps 6 and 7, repeat the entire process starting with step 1 until you are satisfied. It may take a few tries so patient is a virtue. Please note that if you perform an accelerometer calibration using either the Google Chrome BaseFlight Configurator or the sticks, these tweak adjustments will be lost.

CALIBRATING THE GYROS PRIOR TO FLIGHT:

It is inevitable that you will move the multirotor around while plugging in the main battery. This causes issues with the gyros because they need to be idle on power up in order for the calibration process to work correctly. The gyro calibration process lets you re-calibrate the gyros after power up.

1. Do not arm the multirotor



FLIP32+ TIPS:

- Calibrate the gyros before arming
- Always take off in ACRO mode
- Switch to the desired mode only after the multirotor is stable
- Cover the Flip32+ barometer with open cell foam or place the Flip32+ in a protective case
- Never change trims or sub trims in flight
- If the multirotor starts to want to flip on takeoff, check motor/prop directions and channel movements in the configurator.

MODE 2 TRANSMITTER STICKS FUNCTIONS:



Arm the multirotor



Disarm the multirotor



Calibrate the Gyros



Calibrate the Accelerometers



Calibrate the Compass (Magnetometer)



Trim the Accelerometers